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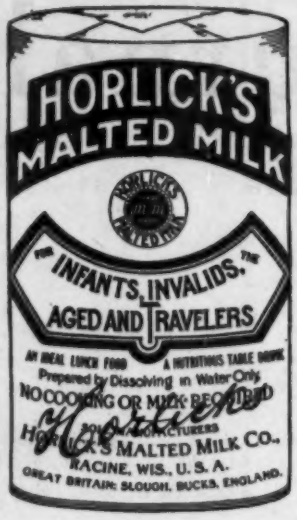
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VOL. XXX CHICAGO, ILL., SEPTEMBER, 1916 No. 3

Original Articles

IMPROVED TECHNIQUE IN MY NEW SUBMUCOUS OPERATION.*

OLIVER TYDINGS, M. D.,
CHICAGO.

While it has been over six years since the first operation was done, and only a little over a year since it was presented to the public—except to my classes at the Chicago Eye, Ear, Nose and Throat College where I have endeavored to give it first place in all submucous work—yet the kindly criticism of my article by those who have tried it has spurred me on to greater efforts to simplify and improve the technique. I believe from the experiences of the past, together with my knowledge of results obtained by all other methods, I am justified in the statement that this is destined to supplant all other methods in the correction of septal deformities, whether of traumatic or developmental origin.

To quote from a previous article the advantages as there set forth for this operation:

1. It preserves intact all the structures of the septum unless there should be a redundancy of tissue, in which case to that extent it is removed.

2. When correcting a displacement of the so-called columnar cartilage any operation which removes that part of the septum leaves a lack of the sense of resistance while wiping or touching the nose at this point, which is disquieting to the patient.

3. Where there is a distinct dip to the tip of the nose, it can be elevated, making a marked improvement in appearance.

I will add another great advantage—when operating upon an atrophic case, where the preservation of everything not pathologic is so necessary, it adds greatly to the comfort and well being of these unfortunate sufferers.

*Read before the sixty-sixth annual meeting of the Illinois State Medical Society at Champaign, May 17, 1916.

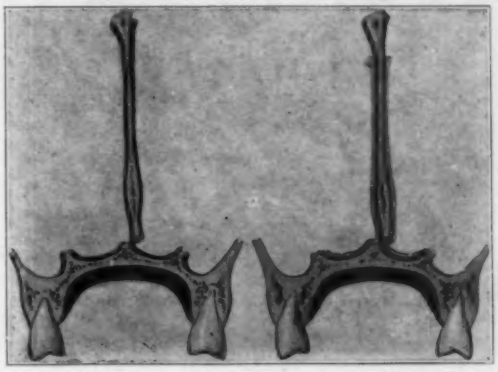

Fig. 1. Septum Deflected to the Left, Denuded of Mucosa-covered with Its Perichondrium.

Fig. 2. Same as Fig. 1, Except that Mucosa Remains Attached.

For the sake of brevity and clearness I shall consider only one form of deflection, leaving to the ingenuity of the operator to improvise the various steps needed to meet the modification of the various forms of deflection which one meets in operative work upon the septum.

The form I will consider is that in which we have a deflection of the cartilaginous and bony septum. With the speculum in the nares,

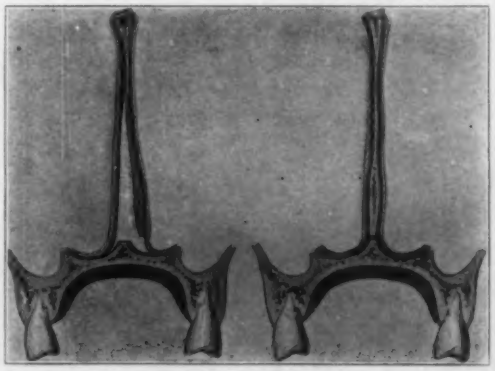

Fig. 3. Same as Fig. 2, with Dissection Complete. The Perichondrium and Overlying Mucosa Elevated Upon Concave Side and Severed From Its Attachment Upon the Convex Side.

Fig. 4. Same as Fig. 3, Restored to Normal Position.

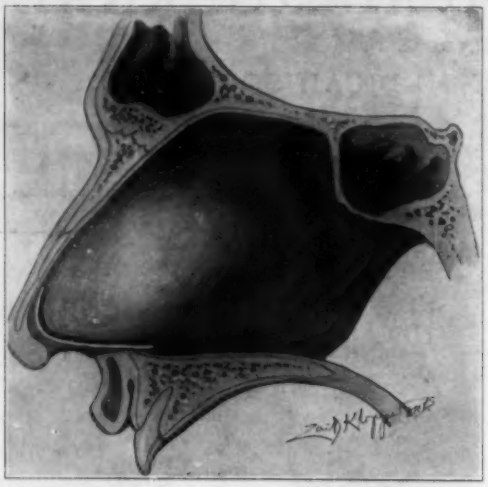

Fig. 5. Deflection of Triangular Cartilage Showing Extent of Dissection. The Perichondrium and Overlying Mucosa Upon the Concave-Right-Side Has Been Elevated, and Cartilage Freed From Its Attachments Upon the Convex-Left-Side, Now Ready to Be Put in Position.

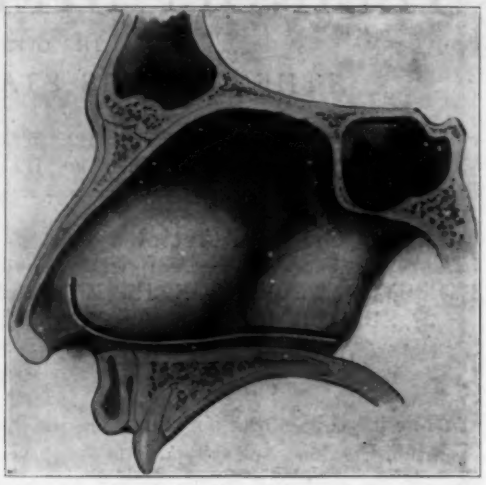

Fig. 7. Showing Extent of Incision Upon the Convex Side Where Bony and Cartilaginous Septum is Deflected and Cartilage Freed From Attachments with the Elevator and Bone Severed with a Chisel after All Structures Upon Concave-Right-Side Have Been Previously Elevated.

upon the convex side, make your incision just anterior to the deflection going through mucosa and perichondrium. With a Freer cartilage knife you pass through the cartilage at an angle of about 45 degrees until you reach the perichondrium on the opposite side, then with a sharp Freer elevator, with the concave side turned so as to present the concave side of the elevator to the concave side of the cartilage and parallel to the septum, pass through the cartilage and start your dissection. As soon as you find the adhesions light, exchange for a Killian blunt dissector, moving in the line of least resistance, which is usually found a little above the center of the septum, until you have completed your dissection as far as the deflection extends posteriorly. With the same elevator you move down-

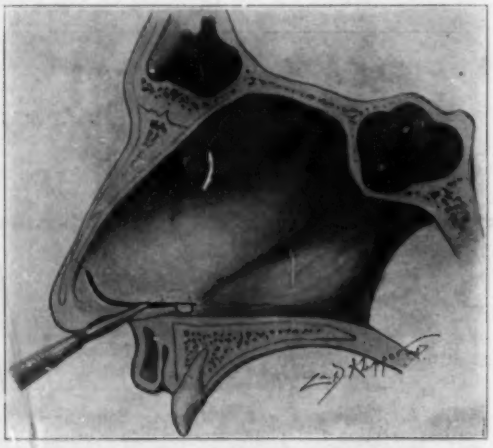

Fig. 6. Showing Position of Elevator After Separating Cartilage and Severing Perichondrium and Mucosa Upon Convex Side.

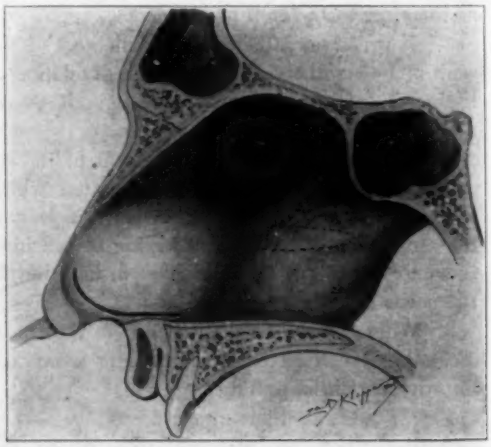

Fig. 8. Cartilage Deflected to the Left, Bone to the Right, After the Perichondrium and Overlying Mucosa Have Been Elevated Upon the Concave-Right-Side. The Elevator Separates the Articulation Between the Cartilage and Vomer, Passing From the Concave-Right-Side Anterior to the Concave-Left-Side Posterior.

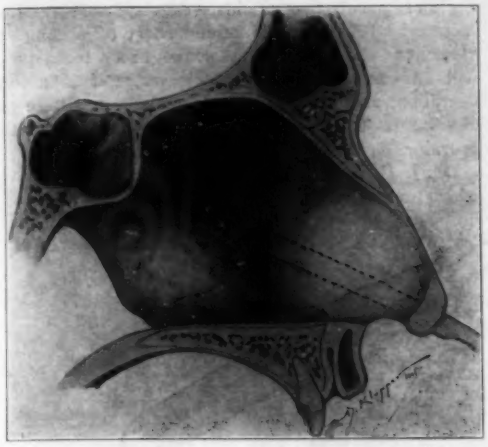

Fig. 9. The Same as Fig. 8. Dotted Line Showing the Course of Elevator, and Cut Line Below Showing Work Done with Chisel.

wards and forwards towards the floor of the nose until you come to the interlacing fibers at the anterior part of the vomer. Then take the sharp angular elevator of Freer's and sever the interlacing bands. After severing these, you then change the direction of your dissection so as to free the cartilage before attempting to elevate the periostal covering over the crest of the maxilla. You will remember that the crest of the maxilla is covered with periosteum, your displaced cartilage is covered with perichondrium, and if you attempt to elevate the structure over the maxillary ridge before you have relieved your cartilage from its perichondrium, you will get a perforation and render your dissections more difficult.

In separating the cartilage from its perichondrium keep in contact with the cartilage

Fig. 10. Showing Position of Thumb While Making Dissection in Extreme Displacement of Cartilage to the Left at Its Anterior Border. The Mobile Septum Pressed to the Right, Incision Made Through Structures and Perichondrium Elevated Upon the Right Side of Septum. The Cartilage is Freed From Its Faulty Position and Replaced in a Normal One. This Form of Deflection Requires Sutures of Silk-Worm Gut to Hold It in Position.

until you have passed from the concave to the convex side of the septum. After separating the perichondrium go back to the divided structures at the anterior part of the vomer and dissect the periosteum overlying the maxillary crest, making your dissection forward a little anterior

Fig. 11. Freer Cartilage Knife.

to your primary incision, through the cartilage as far as the structures will permit. Now the entire periosteum and perichondrium, with the overlying mucosa upon the concave side of the septum, has been elevated and your cartilage freed from its faulty position alongside of the maxillary crest as far as the vomer, and if the articulation with the vomer is faulty this is also released.

Your next step is to take a Freer chisel and start your incision upon the convex side at the anterior part of the vomer at the point of deflection, which is usually at the point of articulation with the maxilla. Sever the bone, periosteum and mucosa just below the line of deflection as far posterior as the deflection goes. Then with a blunt instrument (and for that purpose I use the instrument I show and have also used a pair of hemostatic forceps closed, also a blunt elevator), push the structures into the bed made on the concave side of the maxillary ridge. I have also used an Ash forcep for the bony septum, and for the cartilage you can accomplish it with any of these, but at times one is more readily adapted to the work than another.

The bony structures when replaced, as a general rule, retain their position, but require packing at the lower part of the septum to keep them in place. The cartilage tends to return to its faulty position unless some retaining instru-

Fig. 12. Freer Elevator.

ment is used for this purpose. Unless the extreme tip of the cartilage is involved, an ordinary shawl pin, two inches long, is the best thing to retain it in position. The pin must have the head covered with sealing wax so that it will not become too deeply imbedded into the tissues before the time for removal.

To introduce the pin elevate the tip of the nose upon the concave side and pass the point through the loose tissue anterior to the cartilage to the perichondrium on the convex side, now pass it at an angle of 45 degrees downward under the perichondrium and the periosteum at the anterior part of the vomer to the floor of the nose,

Fig. 13. Killian Blunt Dissector.

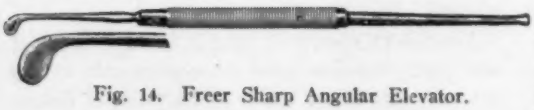

Fig. 14. Freer Sharp Angular Elevator.

Fig. 15. Freer Chisel.

where the point is engaged in the bony structures, and the head in the upper part of the vestibule away from sight. This pin retains the cartilage in position, and will also retain the bony structure in some cases where bone and cartilage have been deflected; but when correcting a bony deflection alone, it is better to use packing. Where the anterior part of the cartilage is involved, whether alone or as a complication, I leave out the pin, using sutures of silk worm gut or silk, to retain the tip in position. Where I use packing, I leave it in from 48 to 72 hours; the sutures from 4 to 6 days; the pin from 4 to 10 days.

DISCUSSION.

Dr. Bergeron assisted the doctor in his new operation a few weeks ago, and later examined the case, finding the results were gratifying, with a firm, sound septum. He believes that the operation is particularly adapted to deflections involving parts of the cartilaginous suptum, or both cartilaginous and bony septum. However, where you have that redundancy to an angle of seventy-five or ninety degrees, such as often occurs, he believes that nothing short of a complete dissection—the old method or the Freer technique—will answer the purpose. However, this is a new operation, and if it is going to make you reduce the discomforts to the patient and make it easier for the operator, he thinks you should all give it a trial.

Dr. J. C. Beck, the chairman, described a case in which extensive removal of the cartilage and bony septum had been done by an excellent surgeon and in consequence there was continuous flapping of the septum to one or the other side. Dr. Beck made a perforation back along the floor and the patient was thereby relieved of this condition. He thinks that septum should have been left alone entirely, but an operation by the method suggested might have been of some value.

Dr. Tydings, in closing, stated that he had studied this question for many years, and found this superior to any other method that has been used. It will not cure a great deal of thickening of the ethmoid, but you can correct at least ninety per cent of year operative cases by this method and preserve intact the structures of the nose.

The case that Dr. Bergeron saw him operate on was a suppurative otitis media of some years standing, that he thought of doing a mastoid on, but decided to straighten up the nose first. The mastoid has not been necessary because it stopped running—the first time in years—and it has stayed stopped for some months. He offers his services to any man who wants to learn the operation.

Fig. 16. Tydings Replacer.

THE TONSIL—ITS MEDICO-LEGAL ASPECT.

CHARLES J. WHALEN, M. A., M. D., LL. B.
CHICAGO.

A greater variety and more incongruous ensemble of opinion is inconceivable than that now

held by the general profession regarding the treatment of diseased tonsils.

The intelligent treatment of diseased tonsils implies a clear understanding of what constitutes a normal type. By normal tonsils we mean tonsils of a healthy color, not enlarged in length or thickness, and showing no evidences of chronic inflammatory processes. Tonsils of normal structure vary in size in different persons. A tonsil of normal histologic structure may be of abnormal size; it may be so large as to interfere with the natural functions of the pharynx, or it may be too small to properly perform its own functions. The mere size of the tonsil is of itself no indication for removal except it be large enough or diseased sufficiently to interfere with respiration or is causing local or general pathological conditions.

On August 22, 1916, there appeared in the Health Columns of one of Chicago's daily papers over the signature of an M. D. the following: "A year ago last Christmas I had my tonsils removed," writes Marie D. "They were taken out by a good doctor and I felt fine after the operation. But my throat aches now and it seems as if my tonsils have come back." Answer—"If your tonsils once were completely removed they are gone for all time and never can again return. We are wholly unable to develop either new legs, arms, tonsils or other parts, as do some of the lower animals."

How many threatened lawsuits the above statement will bring about and how often it will be used as a blackmailing club by the unscrupulous to justify a refusal to pay bills for professional service rendered by reputable medical men no one can form even an estimate.

Unfortunately similar statements are being made every day by men supposed to know better. To illustrate the dangers of such statements I will mention a few instances. A child about 4 years of age was operated on by a well known and skillful laryngologist for removal of tonsils and adenoids. Operation thorough so far as inspection and the sense of touch could reveal. Two years later examination showed reformation of both tonsils and adenoids. Parents were told by two physicians that the operation was not thoroughly done, otherwise they would not return. Armed with this statement by two physicians, parents demanded return of original fee, otherwise lawsuit would follow.

Another case, child operation, removed one tonsil and adenoids; the other tonsil was extremely small and, having been pronounced healthy by two laryngologists, was not removed. Following operation the supposedly healthy tonsil took on rapid growth. Two local practitioners volunteered information to the effect that the tonsil was unhealthy and should have been removed at the time of the operation. Father of child refused to pay bill and when sued produced two so-called family physicians to help bolster up his theory.

Scores of instances similar to the above could be mentioned, but the point to be emphasized is this, that it is high time to put a stop to indiscriminate, unwarranted and untrue statements regarding the tonsil operations.

I have in my possession a pair of tonsils and adenoids. The exhibit being the third removal from the same child, the first and second operations having been done by one of our foremost American laryngologists. I witnessed both original and secondary operation and so far as the sense of sight could determine the operation was pronounced perfect.

Dr. J. H. Abraham, New York, J. A. M. A., Sept. 21, 1912, reports having operated on a child five and one-half years of age. It was the fourth operation for adenoids and the third for tonsils.

In order to prove that under certain favorable conditions tonsils will reform I shall quote from an article of mine read before the Chicago Medical Society and published in the ILLINOIS MEDICAL JOURNAL, September, 1912, as follows: That infants and children operated on early, even when the operation has been thoroughly done, have recurrences is authenticated by the statements of numerous authors, as, for instance, Cohen, Jacobi, Freeman, Ludlum, Harris, Potain, Luellum, Delavan, Jaresky, Glogan, Hopkins, Gorke and others.

Freeman sizes up the situation as follows: "Recurrences are due largely to the predisposition on the part of the child to produce adenoid tissue and not to defective operation."

Felix Cohen: "While thorough removal is occasionally followed by recurrence it is only in from 3 to 7 per cent. of cases."

Jacobi: "Recurrences are not always due to imperfect operation, but to careless after-treatment."

Ludlum: "Babies operated on early, even when the operation is thoroughly done, sometimes have recurrences. This, I think, is the reason for the indisposition on the part of specialists to operate up to 2 years of age."

Harris: "The protective function of the tonsil carries with it the inherent qualities of the tonsil to enlarge on the slightest irritation for the affording of further power of defense. This inherent tendency of the tonsil to enlarge is further seen in the frequent recurrences of the tonsil after removal. Up to the time of Hopkin's paper it was generally held that such recurrences do not take place; we now know it is by no means uncommon."

Gorke discusses this subject in an exhaustive manner, especially from a histologic standpoint. After stating the two commonly held explanations for the recurrence, viz., malignancy and imperfect operation, and giving convincing proof that neither of these reasons can be the cause in the majority of cases, he shows that the structure of the growth resembles in the main that of ordinary pharyngeal hyperplasia, but differs in this particular, "that a sharp line of division of the different layers is not possible."

Personally I have seen secondary hypertrophy of tonsils and adenoids following operations done by several of our leading laryngologists. In some instances I witnessed the primary operation and know that it was thoroughly done. During the last year I have seen two patients where secondary hypertrophy occurred and where the operation was done by a physician of note, who on every occasion proclaims in public that he had never seen a recurrence in a case where he had done the original operation.

As a result of experience along the lines indicated, I have arrived at the following conclusions: First, that no matter how skillful the operator, it is impossible by any method known at the present time to remove every particle of lymphoid tissue in either the pharynx or fauces.

Second, that the remaining particle of glandular tissues, be it even microscopically small, is capable under certain conditions of assuming a degree of hypertrophy equal to the original growth.

Third, that under favorable conditions in a certain percentage of operative cases a secondary hypertrophy of the lymphoid tissue in the pharynx will occur, no matter by whom the operation is done or how thoroughly he may think he has removed all glandular tissue.

Fourth, the reason perhaps we do not see more reoccurrences among our own cases is because when the obstruction recurs patients are likely to seek another physician; also that patients are more or less constantly changing physicians, and that when we do see secondary hypertrophy in the other fellow's patients we are inclined to believe that the primary operation was not complete. We should also remember that the other fellow is thinking the same of our cases.

25 E. Washington St.

THE TONSIL IN ITS RELATION TO A SERIES OF INFECTION SEQUENCES.*

FRANK BUCKMASTER, M. D.,
EFFINGHAM, ILLINOIS.

I present this subject as one who refers tonsil operative work, and from the view point of the general diagnositician and general surgeon.

The routine discussions of its anatomy and physiology I wish to avoid except to say:

1. There is a lymphoid ring in the throat guarding the entrance to the respiratory and gastro-intestinal tracts, composed of (a) faucial, (b) pharyngeal, and (c) lingual tonsils, in order of their pathologic importance, and (d) there are many other irregularly placed lymphoid masses scattered here and there in the mucosa of this region. These unnoticed masses frequently become infected and hypertrophied also.

2. That the faucial tonsils each contain many crypts or pockets, lined with epithelium, some reaching through to the deepest surface of the tonsil, and that from tissue changes resulting from infection, swelling, adhesions, phimosis, etc., some or many of their crypts may become permanently closed pockets, especially about the upper pole, becoming hot beds of infection, practically culture tubes.

3. That the pharyngeal lymphoid (tonsil) mass may also have crypts which increases its dangers as a local infection incubator and, therefore, as a distributing depot.

4. That the preponderance of evidence to date physiologically indicates that the tonsils are absorptive, rather than excretory, parts.

How shall we recognize infected tonsils? This

*Read before the sixty-sixth annual meeting of the Illinois State Medical Society at Champaign, May 17, 1916.

is not always easy, and their infection may be difficult to prove. A mere glance at the throat will not suffice for a finished diagnosis; however, too frequently tonsils that are plainly damaged—hot beds of pent-up infection—slip through the hands of too many physicians with no attention at all to the throat condition or with a negative pronouncement; a failure properly to understand the relationship of cause and effect in infection sequences.

The general practitioner is the index of achievement; therefore, the tonsil question, like others, advances to a safe conclusion only in proportion as all meet on a common ground of understanding as to when tonsils are dangerous to the carrier and when not. As yet there are many disputed points in this connection; three, however, seem to have been settled fairly congenially, especially the first two:

1. Respiratory obstruction indicates to most physicians the presence of massive overgrowth of part or all of this lymphoid ring and need for operative interference.

2. The continuance of repeated acute attacks of tonsillitis. Very few physicians will deny that these tonsils are a constant source of danger.

3. Massive hypertrophy is a tonsil condition most physicians are quick to recognize as a diseased state, even if respiratory obstruction is not prominent.

Now, as we pass from these three easily and generally recognized infective conditions of the tonsils, do we begin to appreciate how difficult it is to determine as to their infected state; whether they are a source of danger, or not? Why? Because most tonsils harboring dangerous foci of infection are not hypertrophied; are not standing out in plain view of the casual observer, but submerged, hooded and phimosed—many times almost from view; because many of these cases never had respiratory obstruction; never had acute attacks of tonsillitis or they have been forgotten; because so frequently their danger to the host depends not upon local disturbances, but upon their relation to certain general conditions, as well as distant metastatic foci, together with the progressive tendency of these things when started; probably not in childhood but in adult years. Evidently, then, the examiner must establish a routine in his work relative to tonsillar examinations and a basis of findings which will help him to decide as to this matter. Other factors to be considered in identifying the tonsils as infective sources of danger are:

1. Adhesions about the tonsil, hooding or covering it in, more or less; these result from infection in the part and the adherent parts frequently cover in crypts, making closed incubating pockets of them.

2. Has the tonsil become a dangerous focus of infection in proportion to its hypertrophy? No; while hypertrophy is a reactive state these large tonsils are in a better structural state to resist infection than the more common, small, fibrous, phimosed tonsil, whose protective lymphatic mechanism is much more seriously crippled than in most hypertrophied tonsils. Mere plugs or remnants of tonsils, then, must not be considered as incompatible with resident foci, but frequently the reverse.

3. Zones of redness about the tonsils, marked or not; frequently there is a half-moon shaped zone over the front surface of the anterior pillars caused by the infected tonsil beneath. These color zones are easily contrasted with the mucosa about them.

4. The presence of more or less general discoloration of the throat, often most intense about the tonsillar fossae and up behind the soft palate, together with unusual or abnormal lymphoid masses studded over the back wall of the throat, indicate persistent infection foci about the nasopharynx, very often in the pharyngeal or faucial tonsils, and a complete search should be made.

5. The inconsistent persistency of the tonsils is an evidence of their infection.

6. Palpable enlargement of the tonsillar lymph gland lying between the facial and internal jugular veins below and behind the angle of the jaw on either side. This one gland drains the tonsil fossa of its own side and should always be examined; its enlargement (when not a part of a general lymph gland hyperplasia) indicates absorption of infection from within or about the tonsil. This is a very valuable sign in your search for the dangerous tonsils. It will disappear as a palpable enlargement when the tonsil fossa of its own side is properly cleaned up and healed up, but if a little tonsillar or granulation tissue remains indefinitely in the fossa after operation, an open mouth of absorption, however harmless in appearance, this gland enlargement persists and betrays it. Tenderness of this gland on palpation, which is frequent, indicates a re-

action to a more rapid and virulent absorption and frequently by continuous observation these glands will be seen to go through repeated cycles of tenderness, with remissions or intermissions, yet with persistent gland enlargement, thus denoting the relapsing cycles of tonsillar infection at times without the patient having been aware of the local changes in the throat. The absorption may be so severe that tenderness in and about this gland has become persistent and is the regular finding in a given case.

7. Multiple glandular enlargement about the tonsillar lymph gland probably indicates that the latter was unable to prevent the infection from spreading through it to other glands, which it has done. Frequently the tonsillar gland will be observed to be the largest of all. This condition, in the absence of a recent acute tonsil infection, must make the examiner very suspicious of a tubercular infection, probably in both the tonsils and glands. Such a tonsil has no regularly characteristic appearances, but is known best clinically by its effect on the lymph glands, and tubercular lesions frequently will be found elsewhere also.

8. The lateral neck regions, along the sternomastoid or other muscles, is frequently complained of as being painful, tender and distressed on palpation or active movement of the part and there may be noticable limitation of motion. These recurrences correspond with the storms and relapses of absorption from the throat. The throat may be complained of very little, the patient attributing the "rheumatism" in the neck to "cold" or changes of weather.

A history of frequent "colds," myositis, arthritis, earaches, deafness, chronic fatigue and anemic states should direct one to make a careful examination of the naso-pharynx. Also the history of such specific fevers as diphtheria and scarlet fever, as these frequently initiate a permanent infection state in the pharyngeal lymphoid ring, particularly in the faucial tonsils.

Now, what do we find when we go into the matter of metastases resulting from chronic septicemias from pent-up infections, tonsillar or otherwise?

How do we know that tonsil infections produce mestastatic infections elsewhere, not in one or two, but in many locations? Just as we learned that many of our dyspepsia and various types of stomach cases get well when we removed appendices, cleared up bile tract infections and obstructions, being forced to do so, however, by the dangerous progressiveness in the operative part itself. Today it is acknowledged good surgery to clear up these local abdominal conditions early in the history of their digestive disturbances and poor diagnostic ability to overlook all these warning storms in distant organs, until brought to a realization of the real condition by a "blow up" in the local part itself, frequently of momentous importance. So it is in tonsil work. It must be recognized that tonsil infection (as with other pent-up foci) can and does produce a circulating bacteriemia or chronic septicemia, with metastasizing here or there of these bacteria picked up from a focus under tension—usually the streptococcus in some of its forms of transmutation—but do we realize sufficiently what this means to the future welfare of the patient; how extensive and how permanently crippling may be any or all of these secondary infection foci; how this chronic septicemic state maintained by daily contributions from the pent-up focus, sooner or later produces secondary foci? Where? Almost anywhere, but more frequently in certain parts. The appendix seems to be the most frequent site of such metastasizing infections, then the heart, the joints, muscles and tendon sheaths (acute and chronic "rheumatisms" and chronic rheumatoid arthitis) the kidneys and their pelves, the bile tracts and pancreas (the liver and pancreas being so frequently affected by syphilis also) the ovaries (producing cysts and sclerotic degenerations), the stomach and duodenum (ulcers), the colon (chronic colitis), the thyroid (storms of thyrotoxicosis), the meninges (meningitis and chorea), the bones (but acute osteomyelitis is probably more frequently secondary to cutaneous or subscutaneous foci); of the cardio-vascular-renal system, producing degenerations and high blood pressure with its resultant crises, apoplexy, slow but certain cardiac and renal failures, gangrene of the extremities, and many other changes as well. Tuberculosis is not infrequently harbored in these tonsils and all will admit that it is not likely to be an innocent or a harmless guest. Pulmonary, lymphatic (cervical and mesenteric) appendiceal and other localizations of tubercle bacilli join into this series of infection sequences clinically too often for mere accidental relationship in the matter. At least it is certainly

greatly predisposed to, by the state of anemia, reduced vitality and extra vital taxation resulting from these infection foci.

Now, is it possible that the little infected tonsil which has seemed to cause no local disturbance worth noting, may and does produce these distant and dangerous lesions? Yes, in its way. It certainly did not produce each and every one of the several metastatic lesions directly, but it does frequently produce the first persistent septicemic state which leads up to and causes metastasizing of the infection here and there, and each such secondary focus, in turn, adds to and increases this state, making more certain further metastases, with their development and crippling of the parts, increasing the anemia, with further lowering of the vital forces, often to the point of semi or total invalidism, even in young people, the development of a connected series of infection sequences in various parts, producing a state very inviting to tubercular activities.

Gardiner[1] has shown how utterly impossible it is to exclude a resident tonsillar infection by looking at the tonsils. He removed tonsils from thirty cases having chronic adenitis, limiting this study to those in whom the adenitis did not begin in the lower part of the neck and also to those in whom he could find no apparent or obvious local focus to cause the adenitis.

On removal, he placed the tonsil immediately in a sterile capsule and examined by flame sterilization; the capsule on deep (external) part of the tonsil was then opened, this deepest tonsil tissue cultured and also planted under the skin of guinea pigs.

In 80 per cent of these cases having no detectable source of the adenitis by the usual examination, he found tonsil infection pent up in the deepest part of the gland. He found as infecting agents the streptococcus in 25 per cent; the pneumococcus in 25 per cent; the micrococcus catarrhalis in 25 per cent; the staphyloccus in 16.6 per cent; tubercle bacilli in 14.3 per cent; bacillus coli in 7 per cent; Friedlander's bacillus in 3.5 per cent. Eighteen of these thirty cases had atrophic tonsils. Four of the six pigs showing no infection died too early for tuberculosis to be shown if present.

Willis[2] examined two hundred and thirteen tonsils removed from 108 patients. Cryptal concretions were found in one hundred and fifty-four. Abscess in thirty. Pericryptal inflammation in one hundred and sixty-five. Positive evidence of tuberculosis in 5 per cent, with a multiple cervical adenitis present on the same side in every case except one.

Such findings are significant, in that many dangerously infected tonsils, from our present standards of observation, have been and still are passed by as harmless.

We checked up as follows in one hundred cases examined, which showed unmistakable evidence of chronic or long standing tonsillar infections, judged by the local evidences:

69 had appendicitis, 45 of these having had acute attacks.

60 had cardiac infections at the present time, or the crippling resulting from past infections mostly myocardial, but occasionally endocardial as well.

54 were markedly anemic, there being three cases of the primary type, one being due to dental infections without doubt.

47 had positive evidences of gall bladder and bile tract infections.

44 had pyelitis or infected kidneys.

42 were subject to so-called chronic r"heumatism" (muscle and joint pains and soreness).

25 gave a history of occasional febrile attacks frequently without known cause; in some associated with noticeable cervical gland enlargement; in others with, or followed by, "rheumatism" or a storm of aches and pains; in others with slight colds, slight throat irritation, etc., not including the clinically acute tonsillitis attacks.

24 gave a history of enlarged cervical glands on one or both sides (about the angle of the jaw) plainly noticeable to themselves, frequently intermittent in their enlargement.

24 had clinically active tuberculosis (lungs, appendix, cervical and mesenteric adenitis, tonsils, fistula).

9 had had severe attacks of acute articular rheumatism, some prolonged.

7 had ulcer of the stomach or duodenum.

7 had clinically marked thyrotoxicosis.

5 had had chorea.

3 had asthma at times seeming to have been associated with recurring infections in the naso-pharyngo-respiratory tract.

1. Tonsils and Chronic Cervical Adenitis, Lancet, Oct. 2, 1915, p. 752.
2. Southern Med. Journal, vii, 746.

3 had marked and severe chronic colitis coming on evidently only after the development of appendix, bile tract and pancreatic infections and cleared up by operative treatment of these apparently causative infections.

2 had metastatic bone infections.

2 had very marked liver cirrhosis in patients free from the use of alcoholics and evidently free from syphilis, but evidently secondary to very old bile tract infections and both had what seemed to be primary liver carcinoma secondary to the cirrhotic reaction, supervening on the cirrhosis.

1 had developed a painful thickening in the right breast during the decline of an attack of tonsillitis three years before, which after the acuteness of the breast lesion passed away, remained as a thickened tender and occasionally painful lesion for two years, then took on activity and at operation one year later was found to be a carcinoma developing from a chronic cystic mastitis, evidently directly metastatic from the acutely infected tonsils.

1 had five stones lodged in the right ureter simulating chronic appendicitis, but with a history definitely indicating renal infection; several of the cases of kidney infection had had renal colic attacks, four or five of them giving a history of having passed small stones with each attack, but none remained in these kidneys.

Now, as to the tonsils themselves in these one hundred cases, forty-five gave a history of one or more attacks of acute tonsillitis, twenty-one had hypertrophied tonsils, sixty had markedly atrophic and submerged tonsils. Four gave a history of tonsillar (peritonsillar) abscesses. One hundred of them showed plainly palpable enlargement of the one tonsillar lmyph gland on one or both sides, according to the tonsillar infection, while in many at the time of examination multiple adenitis was present, involving glands about this tonsillar lymph gland, behind and below the angle of the jaw.

The average age of these one hundred patients was a fraction less than twenty-eight years, ranging from four to seventy-eight. Many of these cases had an increased blood pressure as well, and frequently one will see this corrected or materially improved by removal of infected tonsils, or clearing up other foci. That vascular fibrosis and high blood pressure constitute one link in this series of infection sequences in many cases, later on, there can be no doubt, though this may be luetic.

There were three cases of subacute relapsing nephritis with severe albuminuria casts, blood cells, scant urine, etc., regularly relapsed by relapsing tonsillar, tonsillar and respiratory tract, or appendix infections (one each).

Now I realize that this checking up of links or sequences in a progressive chain of infection —metastatic incidents to a chronic septicemia— in which the tonsils were harboring a pent-up infection, at the time, and were probably the most frequent origin of the septicemic state is open to much criticism because:

1. It was not known positively, of course, that the tonsillar infection ante-dated all other infection foci, producing the first septicemia.

2. It would be manifestly unfair to blame a tonsillar infection with directly producing each and every metastasis above outlined. Instead, there is some order as regards incidents and time of appearance of these progressively appearing lesions.

Appendix and endocardial infections, "rheumatisms" and chorea, anemia, and even at times chronic or subacute infective nephritis come early in the series. Added to these progressively later in the series may be bile tract (influenced by pregnancies) and pancreatic infections, pyloric ulcer, myocardial infections and degenerations, and vascular fibrosis with high blood pressure (cardio-vascular—renal degenerations) with its attendant crises, chronic rheumatoid arthritis, etc. But 20 per cent of our cases of bile tract infections had had typhoid fever and most of these had had appendix, intestinal or other infection-foci which are common causes, reducing typhoid to a minimum in the causation of gallstone disease.

The infecting cocci undergo cultural changes in virulence and otherwise in the various foci, more properly fitting them for their successful attack in new fields, accounting for a certain amount of order or regularity in the development of these successive series of infection sequences.

3. Some of these cases had sinus infections, pus pockets at tooth roots and pyorrhea, prostatitis and vesiculitis, any of which can produce this chronic septicemia or continue it, but tonsil infections usually precede these in life.

4. This checking up does not take into account the many pelvic infections, neisserian and otherwise, in many of these cases, nor their influences on the whole chain and vice versa.

5. No account is taken here of the possibilities of chronic septicemia resulting from intestinal tract foci, primarily, rather than from the naso-pharynx.

6. These cases usually came, not early for tonsil work, but later because of the crippling and progressiveness of secondary foci, with anemia, chronic fatigue, nervousness, dyspepsias, etc., added to the symptoms regularly accompanying their respective lesions—as with many so commonly seeking surgical relief.

7. We did not attempt in this one hundred cases to check up on all infective lesions, possible to develop as a sequence in such septicemic states from tonsils or other foci.

Treatment: When these cases reach the general surgeon, medical or expectant treatment usually avails little, but with the proper rest (often absolute) we are enabled to improve the local and general conditions, thereby lessening the operative risk or making it relatively safe. Remove as many infection foci, primary and otherwise, as possible, then the patient may be recuperated satisfactorily by rest, medicine and other recognized means. This applies also to these patients having active tuberculosis, *yet in the curative stage.* Removal of all other infective foci, naso-pharyngeal, abdominal, etc., by proper operative methods, permits the vital powers to establish a quarantine fibrosis about the lesions, producing a latency otherwise impossible in many cases. Obviously, then, many of these cases have progressed too far in this chain of infective sequences for a removal of the primary focus to clear them up, enabling them to live independently of their physician. This helps, though, as the primary focus is the greatest distributor of infection and should not be neglected. Omitting reference to all other operative procedures (for infections outside the tonsils) we must urge the complete enucleation of tonsils as the operation of choice. Clipping of the tonsil does no good as a rule, but is still done for no other reason than selfish personal gain.

Murphy's circumcision of the tonsil and Makuen's opening and draining of the crypts are conservative measures for the consideration only of the special tonsil operator. Blum[3] and French are so conservative as to be ridiculous. The latter believes[4] that 80 per cent of hypertrophied tonsils do not contain infection foci and need not be removed.

The conservative treatment of worth to the patient is the one that best removes the cause and conserves his health, preventing the development of metastasis, or minimizing those present by cleaning up the chronic septicemia in so far as it is fed by the tonsillar infection and in my experience no condition leaves the patient so well in line for this result as does a complete removal and thoroughly healed over fossae.

Complete removal must remain the operation of choice. What happens after the removal? Too frequently it is incomplete in spite of skillful and welf directed efforts of the trained operator and how much more frequently must the all-round specialist or occasional operator fail to get a complete removal? After enucleation a large cup-shaped fossa is left to be covered in. This cavity spread out on a plane would be surprisingly large in extent. Nature's first protection or covering is a whitish mold or exudate. When the raw surface is all nicely covered over in this manner the troublesome soreness disappears, the patient swallows easily and he believes his throat is healed now and too frequently at this time (about the end of the first week) too many surgeons (or those who do surgery) discharge their patients and give them no further attention. This is the grossest of negligence as regards end results. Soon now the white exudate disappears gradually, which means that the raw surface has been covered under the exudate by granulation tissue but not yet healed in. It is still in a measure an absorptive surface even if we are taught that granulation tissue is protective and non-absorptive. The final word in this healing process to render the fossa completely non-absorptive is its perfect epitheliazation, which proceeds toward the center from the edges of this great raw surface now covered by granulation tissue, just as a large burned area is gradually covered over from the edges by the modified skin after becoming covered by granulation tissue. This process in the tonsil fossa is a very slow one, and it may be observed in its progressive steps for weeks before being finished perfectly—or too frequently

3. Archives of Pediatrics, vol. 32, No. 11.
4. N. Y. Med. Jour., Dec. 5, 1914.

the process of epithelization peters out before it is finished because of overgrowth of granulation or lymphoid tissue, leaving a mass of granulation tissue bulged up over the unhealed portion of the wound, which may now be small in extent. To all appearances in many cases the actual tonsil tissue is all out, but whether this be true or not the wound for practical purposes now remains open indefinitely, the tonsillar lymph gland remains palpably enlarged, the anemia, septicemia, and metastatic heart, kidney or other infections, fail to be relieved as was expected, and as will occur perhaps when the fossae are cleaned up again and carried on to a complete healing; very frequently, too, a small piece of tonsil was left sticking in the fossa, which rapidly enlarges again after the patient is discharged at the end of a week or ten days, interrupting this complete epitheliazation above referred to, in which instance the end result is one hundred per cent. sure not to be as satisfactory as it should have been. In many of these cases the remaining piece of tonsil, possibly unnoticed in the first week, may look like a whole tonsil in a year or two. In either of these instances an open, absorptive surface remains, and frequently tissue harboring a hotbed of infection persists, with unsatisfactory local and general results, all of which, with the patient's co-operation, is inexcusable and must be considered as poor surgery.

These cases must be followed up, remaining pieces of tonsil removed, granulating surfaces cauterized, epitheliazation stimulated, etc., until the fossae are completely healed in and the surface rendered non-absorptive. This may require months of observation but usually will be accomplished in but few weeks if diligently followed up. There are now too many patients who believe their tonsils are out and the fossae healed, when in effect they are not.

J. C. Simpson[5] reported 571 cases of enucleation of tonsils and removal of adenoids done by accomplished tonsil operators in Philadelphia:

320 had sore throats before operation.

115 continued to have sore throat after operation.

205 (64 per cent.) were relieved by the operation.

316 (55.25 per cent.) had a complete removal of tonsil.

255 had tonsil tissue remaining—in 72 enough to class as an hypertrophy; in 183 a slight amount (which will continue the fossa as an open absorptive area and probably as readily harbor pent-up infection, as shown by the enlarged lymph gland draining the area, the anemia and fatigue, etc. This is much like the slightly or strongly positive Wassermann —a distinction without a difference).

17 of these 255 were re-operated on, fifteen for the cure of continued sore throat.

58.46 per cent. of the mouth breathers were cured.

70 per cent. had their general health satisfactorily improved.

77 per cent. had previous ear infections, deafness, etc., satisfactorily improved.

30 of 46 bed-wetters were cured of this condition.

The statistics in this paper would only have been of value had the author listed the cures and failures under the two heads: (a) Those with complete tonsil removal, and (b) those in which such was not the case. Then a further factor severely influences the end results, namely, the presence of other foci, primary or secondary, which continue the chronic septicemic state. On the whole his results constitute an excellent showing, considering the fact that but 55 per cent. had complete tonsil removal and that undoubtedly in many of the 571 cases other infection foci were present in an active way which must in degree have prevented complete recovery in many instances.

Concluding, then, let us say:

1. That the tonsil tissues (faucial and pharyngeal) are a very frequent source of the chronic septicemic state which ultimately leads directly or indirectly to such numerous, widespread, various and crippling metastatic infection as we know to occur.

2. That the presence of known metastatic foci, or chronic states of nervousness, fatigue, dyspepsia, anemia, thyroid storms, increased blood pressure and "rheumatic" states should remind the examiner of the probable presence of a persistent primary focus of infection about the mouth or nasopharynx, genital organs, colon or rectum, which, through the agency of the resultant chronic septicemia, is just as persistently continuing other foci, which, through the cultural modification of the infecting cocci taking place in them, are enabled to initiate and continue still other foci, parts, and destruction of all efficiency or even of life itself.

3. That tuberculosis is a frequent complication in these cases and for its own cure frequently

5. Jour. A. M. A., April 1, 1916, p. 1016.

demands the surgical eradication or minimizing of all other foci consistently possible.

4. That where tonsil removal is necessary, to get proper results, it must necessarily be complete, and the patient should not be discharged until the fossae are known to be perfectly empty and healed in.

5. That all patients having tonsil operations should have a general examination by one competent to determine as to the presence of anemia, appendix, heart, kidney, bile tract, pancreatic and other infection foci, blood pressure, tubercular activities, and so on. Many patients have one or several of these conditions already developed when the naso-pharynx is put in order, and should be informed of it at that time, as to be forewarned is to be forearmed. They need further observation and treatment; we would also learn more definitely the therapeutic possibilities of removal of primary foci in relation to the various secondary foci and conditions, in their various stages of development.

6. That timely and complete eradication of naso-pharyngeal infections (mouth and other primary foci) will very decidedly reduce the need for much of the present-day abdominal surgery and will minimize the crippling of heart, kidneys and vessels which is destroying so many useful lives.

7. That in this review of infection sequences, no special consideration has been given to the damage that may be sustained by the organs furnishing the internal secretions, and the resultant effects on health and longevity; that even as children we head toward the grave by definite, but possibly by slow and miserable routes, when we begin to carry pent-up foci of infection in the naso-pharynx, leading to chronic septicemia and metastatic foci; that these cases are essentially surgical in so far as there is a possibility of removing persistent primary or secondary foci, and that the general plan of procrastination so commonly persisted in until multiple lesions, complications, etc., develop is to be condemned as against the best interests of the patient.

DISCUSSION.

Dr. Burkhardt considered this paper of especial interest on account of the fact that it is a record of the clinical observations of one who is working practically exclusively in the field of general diagnosis and general surgery. He thought that the general practitioner too often fails to place the proper significance of infected tonsils in relation to the general system. He has often noted a small tonsil hooded or covered practically by the pillars and submerged, contains considerable pus, and that the removal of the largest kind of tonsils has relieved the patient of rheumatic troubles.

As to after-treatment, he noted in one case, two months after removal of the tonsil, an ulcer that was not healed over.

DIAGNOSTIC AND PROGNOSTIC VALUE OF VISUAL FIELDS WITH SOME SUGGESTIONS IN TECHNIQUE.*

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By perimetry is meant the study of the direct and indirect field of vision. As transcribed upon the chart, it represents the horopter of vision. It is an aid to diagnosis in so far that though the ophthalmoscope may and does reveal many things, yet many affections of the optic nerve, optic tract, chiasm, primary and particularly secondary centers, and cortical centers do not manifest themselves by any definite changes in the fundus oculi. Yet an involvement of any of the above portions of the visual apparatus will give definite changes from the normal in the transcribed field as taken on the arc perimeter.

Perimetry, therefore, in turn serves as an aid in prognosis in so far that it gives the only tangible means, whereby we can judge or fully appreciate any change in the conditions in the lesions of the above mentioned parts of the composite sense organ of sight by the changes that occur in various visual fields taken at varying times.

As an aid to diagnosis, it serves to definitely outline the involved area of the perceptive portions as well as the conducting portions of the visual apparatus. It can serve as a localizer for foreign bodies which have penetrated the posterior globe and which are so small and leave but a doubtful ophthalmoscopic evidence of their passage through the sclera. It also is a great aid in separating the functional from the organic visual defects and exposing the malingerer.

It aids in the interpretation of the localization of the lesion in suspected tract or chiasm involvement, either by direct or neighborhood affairs and also in estimating which of the post nasal sinuses

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are affected, in the latter not always, but of sufficient frequency to be of vital importance.

Careful perimetric measurements will often, nay always, aid in diagnosis when dealing with suspicious optic nerve heads in which central visual acuity is but slightly reduced, and the ophthalmoscopic picture is indefinite.

It also aids in distinguishing, at least in many instances, between chorioidal and retinal disease. Even in mature cataracts it can foretell whether there is any optic nerve atrophy, though perception and projection of light as ordinarily taken would not reveal any atrophy.

So it can be seen that perimetry is much more of an aid in certain diseases or disturbances of vision than the ophthalmoscope itself.

Our vision is of a two-fold type—central and indirect. In central vision the eye fixes intently on a small object and the immediate fovea centralis area is brought into use—any vision outside of this area is eccentric or indirect as objects, more or less in detail, are also seen in the periphery when the fovea centralis itself is fixed upon another small object.

It is the careful analysis of the changes in the central field and indirect visual field by perimetry which will be of value in localizing lesions. As the area of our indirect vision is much larger than our direct, it is necessary to be careful in taking our fields, particularly when we realize that our peripheral field is very acute for observing moving objects which is not true of the macular area. This latter area fixes principally upon stationary points. This fact makes it obvious that we must have a varying technique for taking central and peripheral fields—a fact not universally appreciated by all of us.

Many of us fail to appreciate that perimetry is a painstaking measure and one that must be done accurately in order to be of full value as an aid in diagnosis and prognosis.

There are many perimeters and all have some advantages, but none is as good and scientific as the simple arc of Foerster or Schweigger, either of which must be used in day light.

TECHNIQUE.

1. Position of perimeter—arc facing unobstructed light—preferably north light.

2. Position of patient—back to light and comfortable position in chair and chin rest.

3. Fixing the eye in perfect line and plane with center of arc. The other eye must be accurately and completely occluded—occlusion must not extend higher than nose.

4. Constant attention that the fixing eye does not rotate about and search the moving disc.

5. Allow periods of rest and change to avoid exhaustion.

6. Note the kind of light—as bright, clear, cloudy—also time of day.

7. Take fields at different hours of the day e. g., forenoon and afternoon.

8. Outline blind spot first—this is easy and fully explain to patient what is wanted for taking color and form field.

9. Take form field first—check same by first moving disc from periphery towards center of arc and then again from center to periphery—noting each point.

10. Take color fields in order—blue, red and then green—again from periphery to center and reverse taking note of each point. Colors must be recognized as such, i. e. saturated.

11. Always move arc in one direction and ascertain point for temporal field first and then nasal, take upper points before lower points in field.

12. Have uniformity in marking.

(a) Relative scotoma by

(b) Absolute scotoma by

(c) Blind areas other than scotoma by solid black markings.

13. Always make a measurement at least at every 10 degree swing of arc.

14. In the periphery of the field always oscillate disc and take average.

15. Always use two discs, 5 and 10 mm. the latter field will be larger than the former and the difference represents the negative scotomatous area for that given portion of the field.

16. For colors use the vegetable dyes.

(a) Color recognition must be for saturation of said color. All colors, from periphery of field to center pass through black to white as it were.

17. The rapid changing from a 10 mm. to 5 mm. disc at the same point will frequently elicit the relative scotoma present in that area of the field.

18. Always note the following:

(a) Size of nose, whether large, flat, etc.

(b) Prominence of check bone.

(c) Palpebral aperture.

(d) Size of pupil.

(e) Visual acuity.

(f) Condition of cornea and media.

(g) Whether any medicines, such as strychnia or atropine have been taken.

(h) Prominence of brows.

PATHOLOGY.

The pathology of a visual field is two fold, possibly three fold:

(a) Scotomata or blind spots.

(b) Changes in size and shape of form field.

(c) Changes in size and shape of color field.

Scotomata are:

(a) Relative (area in which form *may be seen* but *not all colors.)*

(b) Absolute (neither perception of form or color).

Virtually then there is only a difference in degree between the two.

Both relative and absolute scotomata may be:

(a) Positive—patient sees entopically black or gray outline of object.

(b) Negative—are not recognized by patient and can only be outlined by perimeter.

Positive scotomata are a lesion or lesions which prevent image formation on the rod or cone neurons.

Negative scotomata are usually associated with disease of the nervous ganglionic elements or affections of the axis cylinders.

In recent cases the location of the lesion causing the scotoma can be relied upon; but in long standing cases a positive scotoma may become negative or a negative may become positive. This point must be taken into consideration in arriving at a diagnosis or making a prognosis.

Negative scotomata can be either relative or absolute, just as the positive scotomata. Negative scotoma are much more difficult to outline than positive ones.

Again scotomata may be: (a) central, (b) paracentral, or (c) peripheral.

A central scotoma includes the macula and its immediate area and may be:

(a) Pericentral—around the macula.

(b) Paracentral—along side of the macula.

Peripheral scotomata are beyond the macular area—somewhere between the 45th meridian and periphery.

A subdivision of the scotoma is the ring scotoma. In this several small scotomata coalesce and may form a complete or partial ring on either side of which there is some vision.

These ring scotomata occur most often between the 15th and 30th degree circles. In this zone the short ciliary arteries terminate and with the peculiar arrangement of the chorio capillaris here, may account for the ring scotoma when vascular changes occur which implicate retina or chorioid. However, the exact formation is still an open question.

When a ring scotoma disappears, it usually first breaks up into small islands—in other words, it disappears as it appeared. This fact must also be well remembered in making a diagnosis and casting a prognosis.

Ring scotomata appear in diseases of the retina and chorioid, but may occur in diseases of the optic nerve, chiasm or brain; one or both eyes are involved and the location of the lesion will determine this fact.

We speak of a central, intermediate and peripheral field of vision:

(a) Central—from macula to 15° circle.

(b) Intermediate from 15°—45° circle.

(c) Peripheral 45° and beyond.

There are three types of changes in the form and color field:

1. Concentric contraction.

2. Concentric contraction combined with angular or irregular areas of greater loss.

3. An almost normal field with large and irregular angular defects in one portion which may even involve the area of central fixation—so-called re-entering angles.

Primary optic atrophy is the best example of the first class; optic neuritis is an example of the second class.

The third class, a combination of the other two is best exemplified by glaucoma. In sinus diseases we usually have the third type and then it is unilateral, as a rule, same side as involved sinus.

Contraction in form field denotes the degree of visual tract involvement and gives a better understanding of conditions than the ophthalmoscope.

Color fields and their changes are a more delicate test than form defects and often furnish the first clue to the trouble—long before there is an involvement of the form field. In this connection we note that blue is more clearly seen in the indirect vision than in the macular area;

blue defects, therefore, are observed earlier in central visual defects than in the lesions of the periphery.

In disease of the conducting paths and centers, blue may be retained, while red and green may have been lost for some time.

Reversal of blue and red or blue and green usually indicates an organic lesion.

Red and green reversal or interlacing denotes a functional lesion only.

In chronic interstitial nephritis the blue field is often the tubular field—almost pathognomonic.

In hysteria, in addition to color reversal there is often the tublar field—almost pathognomonic.

In all our field taking we must avoid exhaustion. Exhaustion often distorts a normal field. A typical exhaustion field is the so-called spiral field.

For convenience of analysis we can consider the fields under the following division of the visual apparatus:

(a) Intra-ocular; including the chorioid, retina, nerve head.

(b) Optic nerve proper.

(c) Chiasm.

(d) Intra-cerebral, i. e., optic tracts, primary optic centers, optic radiations and lastly the por tion of cortex concerned in vision.

A defect in the blue field in no wise proportionate to the red and green defect is characteristic of chorioid and rod and cone (layers of retina) lesion. Hence it serves to distinguish them from the retinal lesion. Contraction of red and green beyond the blue is indicative of lesions of the inner layers of the retina and the ganglionic axis cylinders.

Again the scotoma present in disease of either serves to distinguish them—namely, a positive scotoma accompanies chorioid and rod and cone layers; while a negative scotoma is usually seen in diseases of the inner neuron and axis cylinder.

Multiple scotomata, irregularly distributed over the field, are rather characteristic of chorioiditis. In the syphilitic type, ring scotomata are common. Their manner of formation and breaking up are good evidences for the prognosis—absolute scotomata become relative—remain so or disappear entirely.

Peripheral field contractions are also characteristic of chorioiditis.

In retinitis, especially of the diffuse type, narrowing of form field is seen early—later on the color fields shrink. Scotomata are negative; central scotoma are rather frequent, as the macular area is often the seat of a focal lesion in diffuse retinitis.

Syphilitic retinitis: Contraction of form and color field is early seen and often central vision is reduced to light perception.

In retinitis nephritica, narrowing of color and form field is pronounced. The accompanying edema of the retina gives rise to indistinct negative scotomata while the hemorrhages cause relative and absolute scotomata. The edema of disc increases the blind spot; with all this, vision may be near the normal.

In diabetic retinitis the visual fields are similar to those of nephritic retinitis.

In retinitis pigmentosa there usually is a rapid, though rather irregular concentric contraction of both form and color. Preservation of central vision for form and colors long after the periphery is blind is characteristic. Ring scotomata are characteristic in the early stages. There is a lack of central involvement until the progression of the peripheral loss reaches the macula.

Persistent medullary fibers give an increased size in the blind spot, and, when medullary fibers are ectopically situated, negative scotomata are evinced only by the perimeter—principally in the intermediate zone.

In an active inflammation of the disc accompanying a choked disc, there are peripheral field changes, concentric contractions—frequently sector like defects in color and form. The peripheral field involvement in this condition in more suggestive of active nerve inflammation rather than choked disc, as simple choked disc gives but an enlarged blind spot and vision may be normal.

It is needless to mention the value as far as a prognosis or a diagnosis is concerned of the fields in glaucoma. Indeed in chronic glaucoma, the field is the only truthful criterion of the exact status. The same view may be expressed, only with greater caution, in reference to sinus diseases and the usual field defects and blind spot enlargement accompanying them.

In optic neuritis, of which there are types:

(a) Diffuse interstitial.

(b) Papillo—macular.

(c) Perineuritis—we have distinct changes in color and form field designating the kind of

neuritis present—rather the anatomic portion or section of the nerve involved.

In optic nerve atrophy the same holds true as in optic neuritis.

In taking fields in optic atrophy cases we must bear in mind the following types of atrophy.

1. Primary.
2. Post neuritic or consecutive.
3. Secondary atrophy.
4. Retinitic or chorioiditic.

It can readily be seen from the anatomic construction of the nerve that each of the above may have a characteristic field of its own. There are scotomata—central, peripheral, relative or absolute; particularly red and green fields are early implicated.

Perimetry is of great value in the early stages of any disease implicating the optic tracts and primary optic centers as then the optic disc itself is very late in becoming involved by showing any atrophy. The same is usually incomplete and confined to one-half of the disc on the same side as the lesion when it does appear and this is usually long preceded by field changes.

Posterior occipital lobe and optic radiation involvement are characterized by amblyopia which gradually becomes hemianopic and homonymous, while color and form anopsias are symmetric but decidedly irregular in outline and formation.

Any affection of the visual path in the chiasm and posterior to it is often detected by:

Quadrant and hemianopic scotomata. These defects are spoken of as anopsias and are invariably bilateral, however, rarely but one eye is affected in chiasmal disease.

Anopsias are either:

(a) Homonymous—right or left.

(b) Heteronymous—temporal or nasal.

These anopsias may proceed from the periphery towards the center or begin at the center and spread toward periphery. In either instance the field will indicate which portion of the chiasm or tract is involved.

The above anopsias have a perpendicular line of separation. There may be a horizontal separation for the scotoma and then we speak of an altitudinal hemianopsia or a superior and inferior hemianopsia.

Any of these may be relative, absolute or negative—less often positive in character.

All homonymous hemianopsias are mostly due to lesions within the brain, optic centers or tracts and cover a considerable area, hence often irregular and incomplete when first detected by the perimeter. Indeed, the more incomplete the more likely is the lesion central rather than in the tract or chiasm.

Color hemianopsias only are not often observed; when present they tend to substantiate the fact that there must be separate color centres in the brain.

Color hemianopsia without form disturbance points to lesions in the higher cerebral centres—about the cuneiform body or optic radiations—any other lesions than just here gives rise to a complete form of hemianopsia of color and form.

The following are the principal factors in hemianopsia—especially tract hemianopsia.

1. The tract only may be affected.

2. The form of the hemianopic field alone does not indicate tract disease.

3. Homonymous hemianopsia, combined with failing vision in one eye with a corresponding change in the retained half of the visual field, the disease has already spread to the chiasm.

4. Nasal hemianopsia in one eye with blindness or high amblyopia in the other eye, then there is disease in the tract on same side as the hemianopsia.

5. Hemianopic loss of vision in one eye soon followed by a like loss in the other eye, indicates a lesion very near the chiasm.

6. Bilateral, incomplete homonymous hemianopic defects point to tract disease situated centrally at some distance from chiasm.

7. Paresis or paralysis of one or more central nerves on one side, with homonymous visual halves on the other side of body, followed by or accompanied with hemiplegia or anesthesia on same side as hemianopsia, indicates a disease of the tract and often polyuria is associated with this condition.

8. Homonymous hemianopsia combined with hemianopic pupillary reaction points to tract involvement.

9. Slowly developing homonymous defects point to tract disease.

10. Sudden hemianopsia in an ordinarily healthy patient is often due to intra-cerebral hemorrhages or emboli.

11. Hemorrhages into the tract are mostly of a capillary type.

In the tract lesions we note the additional points:

(a) Bilateral homonymous hemianopsia may arise from the monocular type.

(b) The disease can attack the second tract after causing a homonymous hemianopsia in both eyes by affecting the first tract thus causing a duplex homonymous hemianopsia.

(c) The disease can spread from tract to chiasm—giving rise to temporal hemianopsias.

(d) The disease may spread from chiasm to tract. This gives first temporal hemianopsia followed by complete blindness in one eye. This train of symptoms cannot be separated from that which appears when the disease spreads to the optic nerve of one side or when the whole of one side of the chiasm is complicated.

Sufficient facts have been put forth—even though more or less heterogenetic—yet they conclusively prove that perimetry is a most decided aid in diagnosing certain lesions involving the visual apparatus and that our perimetry should be more carefully done in order to be better interpreted.

THE DETECTION OF MONOLATERAL MALINGERERS AND DEMONSTRATION OF INSTRUMENT.*

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CHICAGO.

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This instrument, I am about to present to you, is for the purpose of detecting monolateral malingerers of the auditory organs.

It is well known that these cases often present themselves to the profession for the purpose of blackmail, or avoidance of services, military or other.

Visual or auditory malingerers as a rule are of the monolateral type. The visual type are easily detected by various appliances and tests known to the profession, whereas, for the auditory malingerers, no exact and simple instrument has been devised to demonstrate and detect them with any reasonable amount of accuracy and assurance.

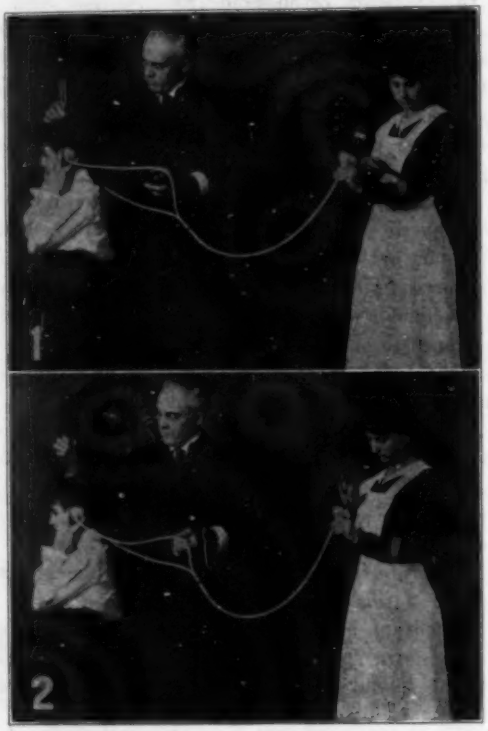
Patients who present themselves for such an examination, may be classed into three (3) types.

1. Monolateral hearing absent with or without objective findings due to the internal ear or nerve and with other symptoms accompanying the lesion.

2. Monolateral hearing absent due to trauma to the auditory canal and middle ear.

3. Monolateral hearing absent due to an injury on the head, without any other accompanying symptoms or findings, except the history as given by the patient.

Particularly in the last instance the instrument is of the greatest value in determining whether or not the patient be a malingerer.



No. 1. Shows operator conducting sound waves by bone conduction to the internal ear with a C2 fork. The assistant is seen to strike a C2 fork, and is getting ready to send the sound waves through the instrument by air.

No. 2. Shows the conduction of sound waves by air by the assistant only. The tuning fork by the operator is still on the head of the patient, but held so that it is not vibrating. With the left hand the operator is seen to compress the tubule which goes to the good ear.

Description of the Instrument.—For the purpose of description, it represents a funnel-shaped part, which receives the sound. This receiver is connected with a flexible tube, which again is connected with a Y-shaped metal tube. On each of these bifurcating ends another flexible tube is

*Read before the sixty-sixth annual meeting of the Illinois State Medical Society at Champaign, May 17, 1916.

attached, into the ends of which are inserted two funnels sufficiently large to cover the entire external ear. The length of the instrument being at least two (2) meters, in order to exclude the sound by air, external to the instrument.

The Examination.—The examiner places himself behind the patient and an assistant with the receiver in hand as far behind him as the instrument permits. The examiner has a C2 fork, which, when vibrating is placed on the mastoid portion of the hearing ear and bone-conduction exercised. Sinultaneously, sounds with C2 fork are now transmitted through the instrument by the assistant which are syncronous, of those transmitted by bone-conduction, hence, very confusing to the one being examined. This is repeated two or three times, and the actual test follows. The C2 fork is placed on the head, without vibrating, the instrument only conducting the sound to the patient and the tube leading to the hearing ear is occluded. This may be accomplished by pressure with the fingers on the respective transmitting tube. If the patient still hears the sound, we have absolute proof of a malingerer.

The C2 fork heard by bone-conduction is, as a rule, about 20 to 30 seconds. So, also, is the sound heard through the instrument 30 to 40 seconds.

The bone-conduction test, of course, is to confuse the patient and make the test more complex, though, it can be carried out without this.

The shells covering the entire ears have been given the preference to ear pieces which are inserted into the canal, since the latter may be occluded on account of its tortuosity. If the patient hears at all, he can still hear the commands of the examiner, without removing the shells.

The C2 fork used for transmitting the sounds through the instrument should be held within the receiver, direct into the funnel and not at an angle.

Voice tests through the instrument have not proven satisfactory, since these sounds are capable of reaching the ears by air, outside the instrument.

The two funnels for the patient's ears are to be held so that the rubber tubes are not in a collapsed state, this may be done by holding the funnels in the palm of the hand, the rubber tube running over the dorsal portion of the hand between the middle and fore finger.

The instrument which I have described and presented to you is called "The Wagner Malinger Phone."

For the convenience of striking and manipulating the two tuning forks, I have used two circular rubber bands which clamp the fore arm. They are nothing more than a one-inch wide segment of the outer casing of an ordinary small sized automobile tire.

31 North State Street.

HORSE HAIR SUTURE FOR THE RELIEF OF TENSION IN GLAUCOMA.*

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During the last few years I have entertained the idea that in the operation of aqueoplasty for glaucoma, or in operations for the relief of intraocular tension by the use of a seton, that a horse hair suture might be used with satisfactory results.

Mr. Arthur Zorab of Southampton, England, and, indeed, all of the ophthalmic surgeons, so far as I know, have used sutures other than horse hair in these operations; most of them employing silk, and in some cases a fine silver wire or gold wire has been tried.

Possible Advantages of Horse Hair Sutures. In the first place, horse hair is an animal texture, and while we know form a surgical point of view that a horse hair suture is better borne by the skin than silk or metallic sutures, it is even probable that the tissues of the eye would tolerate a horse hair suture with less irritation or disturbance than a suture of vegetable fiber or metal composition.

Again, histologically, there is something of an analogy in the development of the skin and the eye, which makes the above reason all the more apparent. The epidermis or superficial epithelial layer of the skin is derived from the ectoderm; the deeper connective tissue layer is derived from the mesoderm. Likewise, the embryonic origin of the eye shows that the epithelium of the cornea and the adjacent scleral surface are derived from the ectoderm, while the other parts of the eye, such as the deeper structures of the cornea and sclera are developed from the mesoderm. Thus,

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if the skin tissues will tolerate a horse hair suture better than a silk one, we might reasonably be led to consider, at least, the probable value of the horse hair suture in eye surgery.

Furthermore, when we examine a horse hair with the microscope, we observe that it is cylindrical in shape, and its surface is quite smooth, which readily adapts it to the use in question.

And, again, the horse hair suture is nonabsorbable and will retain its relative size and position *in situ* when used as a seton for this purpose of drainage which is altogether desirable.

Observation from Experiments. My observation in experiments on the eyes of a rabbit is that the horse hair suture is as satisfactory in every respect as the silk thread, there being no marked reaction in either case. My experiments were made more particularly to observe the effect by way of comparison as to the manner in which the sutures would be borne or tolerated by the respective eyes. The sutures were introduced near the corneo-scleral margin, and passed through the aqueous chamber. The silk suture was left in the eye for a fortnight and the horse hair suture was not removed for one month. Repeated observations revealed the fact that the horse hair suture was tolerated in every way as well as the silk and retained its original position better.

Method of Introducing the Horse Hair Suture for the Relief of Intraocular Tension. At the present time we might consider all of the methods employed for the relief of intraocular tension by the use of a seton or a suture in the experimental stages; yet, during the last decade, the question has been given earnest consideration. A very simple method and one easily accomplished, which might be worthy of further thought and investigation in the use of the horse hair suture, is described as follows: Under the usual surgical precautions, take a sharp, round, straight needle, armed with a small horse hair suture; introduce the point of the needle at the external equatorial region of the eye ball, about six or eight millimeters from the corneo-scleral margin through the conjunctiva and episcleral tissues, passing the needle in the direction of the long axis of the globe to the limbus, thence through the aqueous chamber, making a counter puncture at the corneo-scleral margin on the opposite side, bringing the needle out. Then reintroduce the point of the needle at the place where it was withdrawn, and follow along under the conjunctiva and episcleral connective tissues back from the limbus for a distance of six or eight millimeters, bringing the needle out with the end of the suture. Cut both ends of the suture close to the conjunctiva, placing the retained ends beneath the membranes. The suture should extend horizontally across the aqueous chamber in front of the iris, at a point about one-third of the distance from the circumference of the iris to its pupillary margin.

The advantage of the suture running back from the corneo-scleral margin for six or eight millimeters is that it establishes a path for drainage in the direction of the fascia bulbi (Tenon's capsule) toward the posterior lymph passages.

The retained ends of the suture on both the external and the internal side of the eye being buried beneath the conjunctiva relieves the eye from any irritation occasioned by the action of the eyelids; and also the suture being placed horizontally across the anterior chamber at about one-third of the distance from the attachment from the iris above to the upper pupillary margin, produces little disfigurement since the suture is on a parallel line with the margin of the upper lid when the eyes are opened and in their natural position.

The Use of the Horse Hair Suture in Acute Glaucoma. The object, of course, in the use of a suture or a seton in the treatment of glaucoma is to relieve the intraocular tension by establishing artificial drainage. In acute glaucoma, during the incubation or prodromal stage, or, indeed, during the "glaucomatous attack," the horse hair suture might be used for the relief of the pressure symptoms, while the excretory apparatus is still intact, and before the root of the iris is welded to the cornea.

COMMON FOCAL CENTERS OF METASTATIC INFECTIONS IN THE UPPER RESPIRATORY TRACT.*

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When I was asked to present a paper at this meeting on "Common Focal Centers of Metastatic Infections of the Upper Respiratory Tract," I realized at once what a large subject I was ex-

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pected to cover in a short paper and how impossible it would be to give it other than very superficial considerations. The fact that three symposiums were devoted to different phases of the subject at the last meeting of the Clinical Congress of Surgeons, indicates to some extent how vast the subject is and the important consideration it is receiving by many leading men.

The focal centers referred to naturally include the tonsils, teeth, nares, and accessory sinuses, which on account of their peculiar anatomical location, structure and function offer easy access to an enormous variety of bacteria through these corridors and vestibules of entrance into the human system. It has been said, and no doubt truthfully, that the upper respiratory tract, including the mouth, is probably the host at one time or another of almost every type of bacterial growth. The majority of these, however, are only temporary visitors, but some find more permanent lodging in one or more of the many recesses, caverns or crypts of affected teeth, tonsils, adenoids, nares or accessory sinuses and through metastatic wanderings affect other organs and tissues of the body, both near and far remote from the issues first invaded.

Some of these organisms are rather exclusive as to what part of the anatomy they invade. For example, the gonococcus has a selective affinity for the joints and tendon sheaths, the meningococcus for the meninges, the pneumococcus for the lungs, although any of these manifest their presence at times in other tissues.

The streptococci are not quite so definite in their selective affinity for certain tissues, although showing this tendency in their first invasion from a focal center to a considerable extent, as has been shown by the investigations of Rosenow[1], Irons[2], Brown[3], Nadler[4], and others. Rosenow's series of 48 intravenous injections of streptococci into rabbits in order to observe particularly their effect upon the iris, resulted in 28 cases of iritis, 5 of appendicitis, 8 of pericarditis, 12 of nephritis, and 19 of myositis. He also found that streptococci from the tonsils and appendix of patients having appendicitis produced appendicitis in rabbits, streptococci from patients suffering with arthritis produced joint lesions in rabbits, but this peculiar selective tendency was soon lost, even within a few days, and other tissues and organs were as likely to be invaded from similar procedures. I will not attempt to explain the theories that have been evolved for this peculiar change, or rather loss of selective activity on the part of these organisms, or what vital influence has been exerted upon the germ itself in undergoing this change, but that there is some change, transmutation or whatever we may be pleased to call it, is evidenced by the varying results obtained from the use of autogenous vaccines at different times during the course of a systemic infection. For example, an autogenous vaccine prepared from infective material from a tonsil early in the disease would in all probability give favorable results, but might have very little influence upon an arthritis or endocarditis resulting from the focal center from which the material used in the preparation of this vaccine was taken. In other words, the vaccine does not contain the peculiar antigen required to exert a positive influence upon the progeny of the streptococci which first entered the patient's anatomy by way of the tonsil.

Although the other focal centers named offer ample opportunities for systemic invasion by *tubercle bacilli*, the tonsillar crypts are exceedingly favorable channels for their entrance into the lymphatic system, producing tubercular adenitis and ofttimes further systemic infection. Cervical adenitis from other forms of bacterial infection of focal centers of the upper respiratory tract are common, and the location of the infected gland or glands may be of some diagnostic value in determining the focal center of infection. For instance, focal centers in the teeth may be represented by cervical glands anterior to the angle of the lower jaw, in the tonsils posterior to this angle, etc., the glands involved usually being in line with the lymphatic channels draining the region in which the focal point of infection is located.

Children are peculiarly susceptible to cervical adenitis. The sources of infection are many, and sometimes surprising. At the Children's Hospital connected with Harvard Medical College, during the year 1914, of the patients brought in on account of cervical adenitis over 50 per cent. were due to bovine tuberculosis, having gained entrance into the system from the milk supply through the tonsillar crypts.

Nichol[5] in 1896 reported 500 cases of cervical adenitis investigated in the Royal Hospital for Children, 300 of which were due to tubercular in-

fection, the remaining 200 to other forms of bacteria.

That the teeth and gingival processes are large factors in the production of systemic infection is evidenced by the many reports of investigators in this particular line, as well as by the clinical experience we all have had with patients we were unable to relieve or cure until aided by the dentist in eliminating the focal center of infection in or about the diseased tooth or gum.

In a report[6] following a recent investigation in the University of Minnesota Hospital it was stated that of the patients who were examined for various disorders, many sources of infection were traced to the teeth, that 68 per cent. of the artificially devitalized teeth had apical abscesses, and that of a total of 1,350 dead teeth from all causes 83 per cent had abscesses. Some of these offenders escape ordinary inspection and are only revealed by careful and painstaking effort on the part of the roentgenologist. Hartzell and Henrici[7] have records of 150 teeth, absolutely sound so far as the enamel was concerned, yet harboring infective germs in and about their root canals. It has been found by some of these investigators that the acute dental cases are usually of staphylococcic origin, with little or no systemic symptoms, and that it is the chronic abscess or pyorrheal pockets, in which the streptococci are found, and particularly the streptococcus viridans, which is the one usually responsible (whether located in teeth, tonsils, sinuses or other focal centers) for the long list of metastatic systemic infections, prominent among which are muscular and articular rheumatism, endo and peri-carditis, nephritis, thyroiditis, appendicitis, pleurisy, anemia, chlorosis, mental and nervous diseases, iridocyclitis, iritis, and many others. Dr. Buckmaster in his excellent paper has given many of these statistically.

In a series of investigations of the cause of arthritis by Cokenower, comprising 47 cases, 44 per cent. were found resulting from focal centers in the upper respiratory tract, 8 per cent. from centers in the thorax, 28 per cent. from centers in the abdominal cavity, and 20 per cent. from centers in the pelvic cavity.

Some unusual conditions of tonsillar origin have been proven by autopsy findings that seemed almost too remote to possibly come in this list. For instance, it is not uncommon to find extra dural abscess associated with sinus infection, but Oscar Beck and H. Neuman[8] of Vienna both found cases of suppurative extra dural abscess a sequel of purulent tonsillitis, also one of cerebral abscess reported by Throckmorton[9] of similar origin.

What has been said of the teeth with reference to their healthy external appearance is also true of the tonsil. Many diseased tonsils in which focal centers of infection exist may show very little external evidence of their real condition but if pressure is made upon them with some instrument there will usually be some exudate of pus from one or more crypts, or some pocket between pillar and tonsil, which should be investigated. The size of the tonsil is no indication of condition from a bacterial point of view, as its hypertrophy may have been induced by an effort to resist invading bacteria, and some of the liveliest hotbeds of infection are found in tonsils so small and so submerged as to be easily overlooked by casual observation. Luschka's tonsil and lingual tonsils are not to be omitted from this category.

The accessory sinuses usually give some local symptoms when involved, such as localized pain or tenderness, discharges, etc. When these symptoms are indefinite or absent transillumination may aid in our search for a focal center, but an x-ray picture is frequently necessary to clear up our diagnosis in suspected cases.

Much has been said regarding the efficacy of vaccines, both autogenous and stock, in the treatment of these cases. For reasons previously stated regarding the changes taking place in some of the invading organisms after their entrance into the general system, much can not be hoped for from vaccines prepared from material obtained from focal centers from some of these types. Others may be more definite and possess the particular antigen required to prevent the systemic invasion of certain organisms and improve the defenses of the body. Stock vaccines may happen to contain the antigens of the peculiar strains required to be of similar service, but on the whole are very much of a hit and miss proposition.

Thorough removal of focal centers primarily involved naturally suggests itself as the treatment par excellence in all cases of systemic infection, and should be instituted as early as is possible in the course of the disease. It is not probable, however, that a systemic infection of some months' or years' duration will recover at once following

these radical measures, yet they offer the best and only means through which the patient may hope for a recovery that is in any degree permanent. Their early discovery and eradication before there is any systemic invasion would be the ideal plan of preventing a large per cent. of human suffering and unnecessarily early mortality. Although our present knowledge of this subject is somewhat meagre, yet enough is known through reports of investigators in these lines, as well as by the many clinical experiences we all have had, to cause us to look upon a diseased respiratory tract as a serious menace to the life and health of our patient. Something is being done in certain localities through the dental, medical and school nurse inspection of the mouths, nares and throats of school children. This is a means of education in this particular line that promises much to future generations, and the general public are even now beginning to demand more of both dentists and medical men in protecting them from preventable diseases. And this particular field of prevention of systemic infections from focal centers of the upper respiratory tract is a subject not only for the dentist or nose and throat specialist, but for the surgeon and general practitioner as well. I hope many of the interesting features ot the subject which have been omitted in this paper will be brought out in the discussion.

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DISCUSSION.

J. J. Grant, Freeport, Ill.

Dr. Grant stated that the respiratory and alimentary tract are the chief sources of systemic infection. The nares, the sinuses, the lymphoid tissues of the thorax, play an important part. Rosenow has shown us that change of environment will change the specific action of bacteria. This, he believes is one of the reasons why we have such poor results with autogenous vaccine.

Some men claim that endocarditis is more common following tonsillitis than is the general belief. They go so far as to say that many of our patients suffering from the symptoms of the neuresthenic type, are really suffering from sub-acute endocarditis.

Appendicitis is not uncommon following these acute attacks of tonsillitis. This, I suppose, is due to a similarity of structure of the appendix and tonsil lymphoid tissue.

Dr. Rideout, in closing, said that much is being done at the present time toward improving these conditions, in the way of examining the throats of children, and probably future generations will be more free from these conditions. The public are all beginning to demand more careful and closer inspection of preventable diseases, and this character of disease is included.

TREATMENT OF PENETRATING INJURIES TO THE EYEBALL.*

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JOLIET, ILLINOIS.

There are manifest advantages in dealing with injuries of the eye, as a class, which are not possessed by many diseased conditions.

Certainly the etiology is not obscure. It is a rare exception, indeed, if there is any doubt in this respect. In the treatment also the indications are apt to be definite, and there is, therefore, little reason for hesitancy and delay, if one is thoroughly prepared to attend these cases.

The question of enucleating a severely injured eye is not often a perplexing one. If there is any doubt, a few days' delay will usually decide the immediate phase of the question.

There are also certain principles which have a general application in penetrating wounds: 1, Surgical cleanliness; 2, removal of foreign bodies; 3, proper closure of all wounds.

Surgical cleanliness, while most desirable, is often difficult to obtain for the damage may be done when the case presents itself. Fortunately, pus infection compared with the frequency of injuries, is the exception. This is due to the fact that the normal conjunctiva in the majority of cases contains no virulent pyogenic organisms.[1] Also the self-cleansing of the eye by the blinking of the lids and the flow of sterile tears is an important factor.[2]

For infection it requires, then, a diseased conjunctiva or lachrymal sac or an infected foreign body. Fortunately, again, flying foreign bodies on account of the heat generated by rapid motion through the air are more often sterile.

On the contrary, injuries with wire and other

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non-retained objects frequently are infected and still more frequently apparently trivial injuries of the cornea which do not penetrate may give rise to the well known serpigenous ulcer. Therefore, if a wound is apparently not already infected we treat the eye much as we would preliminary to the extraction of cataract.

The cleansing of the skin with soap and water and alcohol, the avoiding of all caustic or even irritating solutions and the simple but thorough flushing of the conjunctival sac with sterile saline solution is sufficient.

If the wound is already infected we can no longer consider these simple procedures especially if the infection is the virulent pneumococcus.

While we continue the cleansing process in order to wash away the pus and organisms we are more strenuous with them as well as with hot applications and most important the sub-capsular injections of the cyanide of mercury.[3] Vaccines and the pneumococcus serum of Römer,[4] if indicated, should be used. If the infection is confined to the cornea, iris or lens, success will at times reward our efforts. If, however, the vitreous is involved in the infective process failure is inevitable.

In fact, the infection is more and more serious according to its depth. I have repeatedly seen the anterior portions of the eye clear up, the hypopion disappear, only to discover that ominous greenish or grayish yellow deep reflex indicating abscess of the vitreous against which all therapeusis is unavailing. Panophthalmitis may be averted but the diminution of light perception and lowered tension and finally shrinking, warns the surgeon that for the protection of his patient, enucleation is the indicated procedure.

It is most desirable to remove all foreign bodies from the interior of the globe because the eye will only rarely tolerate their presence. Foreign bodies are well tolerated only in the lens space. I have had under my care two cases in which bits of copper have remained glistening in this situation without causing degeneration of the ball after many years. As there is no way of removing them except by the somewhat uncertain and hazardous method of grasping them with the forceps, they are best left alone.

Magnetic foreign bodies, thanks to the x-ray localization and the magnet, are removable. The problem is to remove them with the least damage to the eye. This is simple, only if they are in the anterior portion of the eye. This being true, Haab and his followers attempt to draw the more deeply situated foreign bodies forward into the anterior chamber.

The objection to this method is the longer distance which must be traveled by the steel and the danger of injury to the ciliary body, lens, vitreous and iris.

The Haab method was justifiable before the Sweet localizer came into practical use. Now the majority of operators justly prefer to apply the magnet to a scleral incision over the site of the foreign body.

To present this phase of the subject more graphically I will relate my experience in three recent cases:

Case 1. Charles J., aged 29 years, consulted me February 3, 1916, with the following history. He had been drilling a piece of steel and the end of the opening being imperfect he attempted to complete it with a hammer and chisel.

The result was he was struck in the right eye with a small chip. He experienced very little discomfort. His vision was 6/6. There was a small corneal wound in the lower nasal quadrant, and a corresponding one in the iris. But the lens was uninjured. Anterior chamber normal. Tension normal.

The tip of the giant magnet was applied to the point of entrance without visible result. Attempt to secure an x-ray picture was made but the operator, Dr. Harwood, was not available. February 5, he secured a picture which did not satisfy him on account of defects in the plate. On the 6th a second picture was positive. February 7, Dr. Wells localized the steel in the ciliary body.

February 8, I attempted to draw it into the anterior chamber. This after repeated attempts was unsuccessful, although the iris bulged when the current was on. I made an iridectomy over the site of the iris movement and again applied the magnet. Much to my surprise the steel did not come although there was still the same movement. Thinking that this was due to the iridectomy not being peripheral enough I made a second more-peripheral incision and iridectomy. The steel still failed to let go of its attachment to the ciliary processes. I therefore, on February 10 (eight days after the injury), under chloroform, made a scleral incision back of the ciliary body, hoping to draw the steel backward. This was also unsuccessful. I therefore enlarged the incision with the scissors towards the ciliary body. Magnet again unsuccessful. Incision again enlarged in the same direction, again unsuccessful. I now enlarged the incision at an angle. Still no result. I now enlarged it still more, but back into line with the first incision. This time the application of the magnet brought results.

I have given these details to show the delays and other trials and tribulations which may at-

tend these cases. Notwithstanding all the work on this eye, the lens remained clear, no reaction followed and the ultimate vision was 6/15 with correcting lens. The corneal incision being responsible for 1.50 of astigmatism. This would, of course, not have occurred; neither would the coloboma of the iris have been made if the scleral incision had been made in the first instance. The piece was too small to be weighed and to this fact is due the little damage to the eye and as well the great difficulty in removing it.

Case 2. Peter F., aged 17 years, referred by Dr. Wilcox February 6, 1916, threw a dynamite cap into a fire. It exploded and something struck his left eye. Anterior chamber was full of blood. After absorption it was determined that cornea, iris and lens were injured. X-ray localization by Dr. Wells indicated the presence of small particles of non-metallic substance. Naturally, no attempt was made to remove these, and, except for the traumatic cataract the eye is in good condition at this time.

Case 3. Ross L., aged 40 years, referred by Dr. Hill of Streator, March 24, 1916. While hammering on a piece of iron a week before was struck in the right eye. Small wound in cornea and iris and blood clots in the vitreous. X-ray localization by Dr. Wells showed the steel to be 17 m.m. back of the cornea. After injecting the conjunctiva with cocaine and adrenalin solution, a radical incision was made and the flaps retracted. Scleral incision with cataract knife and application of the magnet. The steel did not present in the wound, but anterior to it. Another incision was at once made immediately over this point and the steel at once extracted.

Dr. Hill reports a very satisfactory condition at this time.

I believe the following technique will most nearly fulfill the requirements in these cases. After obtaining a full and complete history, have an x-ray examination. If positive, have the foreign body localized. Cleanse the field as for a cataract operation. Anesthetise with 4 per cent. cocaine and make a subconjunctival injection of 2 per cent. cocaine with adrenalin over the site of the proposed incision. Measure the distance from the cornea back to location of the foreign body and also above or below, according to its position. If the field is fairly dry this can be marked by a little argyrol. Make a radial incision in the conjunctiva, retract with non-magnetic retractors or with sutures. Make small radial incision with the cataract knife and enlarge with scissors as necessary. Apply the magnet tip vertical to the opening. Do not disturb vitreous or ciliary body if it can be avoided. Resect any of the ocular muscles if necessary. They can be reattached with little difficulty.

I have had one such experience with the superior rectus muscle after a piece of steel had been in the eye for two months.

Cocaine and adrenalin solution render the eye almost painless and bloodless, unless large blood vessels are severed. Hemorrhage is not only annoying but may cause further damage to the vitreous.

It is not wise to attempt to draw the steel from behind the iris after making a corneal incision on account of danger of iris detachment. Twice has this occurred in my experience. An iridectomy will usually obviate this danger.

Haab advises against the iridectomy and does an iridodialysis to permit the passage of the steel.[5]

Haab[6] also advises against the patient's lying down or his head being steadied by a chin rest so that he can readily move his head away from the magnet.

Large pieces of steel should not be drawn forward into the anterior chamber. The smaller the particle the less damage from this method; but the more difficulty in moving it.

The normal covering of the sclera being conjunctiva and underlying connective tissue the natural procedure is to depend on closure of scleral wounds by conjunctival flaps. On account of its loose attachment it does not always bring the edges of the scleral wound in accurate coaptation. Francis[7] has suggested a remedy for this by making an under-flap and an over-flap; thus placing some tension on the conjunctiva in order to hold the wound edges together. The only objection to buried flaps of epithelial tissue is the possibility of the development of cysts which may occur unless the flaps are restored to their normal situation within a reasonable time. This has twice occurred in my experience. Once in the McReynolds operation for pterygium and once in the closure of a very extensive corneal wound by a sliding conjunctival flap. The flap adhered to the wound and about six weeks afterward a large cyst developed. This case is under my care at the present time.

There are still several points which should be mentioned in the subject of treatment.

The injury to lens, whether to remove the swollen lens at once or to wait developments. Donovan's[8] advice is their early operation. The

handling of prolapse of the iris, whether to attempt to reduce the prolapse or to excise. Most operators I believe excise it. Gifford[9] warns against the use of the galvano-cautery for fear of sympathetic ophthalmia.

In conclusion, while recognizing the importance of prompt surgical interference when indicated, sufficient time should be given for the careful collection and weighing of all the available evidence and then, like the wise judge, decide and act.

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CIRCULAR PLASTIC OF EYE LID IN CICATRICIAL ECTROPION.*

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In remedying cicatricial ectropion by means of flaps, two general types of plastic are usually employed, either that of Frick or that of Dieffenbach.

We are all familiar with the tongue shaped flap of Frick from the temporal region, also with the quadrilateral method of Dieffenbach by means of which triangular defects, or defects that can be converted into triangular shape are remedied.

I have no confidence in grafts to repair defects of the eye lids which are extensive enough to produce ectropion. I have too often seen an immediate perfect result followed in six months or a year by hopeless recurrence of the trouble. I am confident that grafts, especially those of the eye lid which are exposed to secretion and constant movement, in time undergo degeneration so that the ultimate result is almost the same as if no graft had been used. I have, therefore, in cicatricial ectropion come to rely only on flaps.

During the past six years I have evolved a method which, so far as I can find, has been used by no one else and which I think meets certain contingencies better than the methods now in use.

The great difficulty with which the plastic operator on the eye lid has to contend is subsequent shrinkage. To remedy a cicatricial ectropion it is not enough to bare the defect, dissect out adhesions and lay your flap into place; a redundancy of skin is necessary if we wish a good ultimate result. Why? Because in the methods now in use the shrinkage is always away from the eye ball. In other words, all shrinkage tends to a recurrence of the ectropion, and to meet this we must make our flaps too large. This has disagreeable drawbacks. It is difficult to do nice plastic work with a flap that is too large. If we are working on the upper lid, a flap that is too heavy produces a rather disagreeable ptosis. It is difficult to nicely approximate a redundant flap and we are, therefore, in more danger of losing part of our flap. If now it were possible to produce a flap where contraction would pull the lid toward the eye ball, instead of away from it, one of the most serious objections to the present methods would have been overcome.

In my so-called "circular plastic," I believe I have devised an operation which meets this contingency. I have employed the operation eight times and have found it simple and satisfactory. In two of these eight cases the eye ball has been removed and the operation was performed to enable the patient to wear a prothesis; for such conditions I believe the operation a very useful one.

In one of these cases, a beginning sympathetic ophthalmia, in which Dr. E. V. L. Brown saw the case in consultation with me, I performed this plastic at the time of enucleation and, although the patient had a pronounced ectropion and Dr. Brown thought we should have serious trouble wearing a glass eye, she has worn a prothesis for a number of years without the least trouble. The method briefly is as follows: Assuming ectropion to be in lower lid, incision beginning just within outer angle ½ centimeter below lid border and parallel with it; adhesion carefully dissected out. With a kerotome that part of upper lid about two or three m. m. above outer angle split into two layers, skin being loosened back as far as orbital fold, outer angle included; loosened skin at outer angle of upper lid forms the pedicle of the flap; tongue of the flap is formed by two parallel incisions, semicircular in shape, parallel as much as possible to lower lid

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border. The flap is continuous in shape and contour with skin of upper lid; as much as possible where the scar tissue which is causing the ectropion extends beyond outer angle of lid, this must, of course, be included in the flap. I have never, however, experienced any trouble from this fact. The hair bulbs of the eye lashes at outer portion of upper lid are destroyed by cutting off with small curved scissors. The defect in lower lid is put on stretch by suturing edges of two lids together. The semicircular flap without distortion of pedicle is easily laid into defect and sutured into place. If an especially nice and snug approximation is desired, we can pass a double armed suture through the conjunctional surface, each needle passing out through the outer skin surface of the flap and is tied over small gauze roll, pressing the skin snugly against the underlying surface. The lids are kept sutured together, if possible, for several weeks.

In this operation I have tried to follow the lines of Nature. The orbicularis muscle is circular and continuous. I have made my flap follow the lines of the orbicularis. In Nature the upper and lower lids are continuous, being joined by a circular dermal muscle. Plastic operations on the lids have not, hitherto, observed that continuity; I have tried to follow it.

What shrinkage now takes place pulls the everted lid toward the eyeball, not, as hitherto, away from it. The defect made where the graft is taken can be covered, either by undermining surrounding skin and approximating; or, if desired, by Thiersch graft, because it is of no consequence if the graft over this defect shrinks or not, so far as the ectropion is concerned. The orbicularis, being a dermal muscle, many of the fibers of the muscle are transferred with the skin so that we have in reality a muscle as well as a skin plastic.

DISCUSSION.

Dr. Remmen thought that this operation had good points. The future will decide whether it is as good in practice as it seems to be in theory. He was afraid that possibly there might be a little over-effect. If that flap begins to break, it might close the eyes ultimately, and good judgment will have to be exercised.

Dr. Gradle had the pleasure of helping Dr. Snydacker do the first case he had ever seen, yesterday, and it impressed him very much as being a new procedure and a very distinct addition to the operative repertoire. He thought we could all do this with advantage. It is not particularly difficult to do, provided we follow the rules laid out by Dr. Snydacker. He thought it was a very valuable addition, and that we can be congratulated upon hearing the first public announcement of a new operation.

Dr. Suker also saw Dr. Snydacker perform the operation yesterday, and in addition to that, had seen him perform the operation several years ago. It must be said that it certainly is an ideal method for the restoration of ectropion. It is anatomically sound, physically true and clinically correct. Therefore, the three essential factors in the establishment of the legitimacy of an operation hold true, which is not so for the majority of operations for the relief of ectropion.

He asked the doctor whether, in cases of ectropion and the loss of the tissue, it would not be advisable to raise that scar first by means of an incision and then transplant some fat, in order to get a base. It has been his experience that unless we have more or less of a sub-cellular tissue for these grafts to slide upon, they will not do as well. The fatty base graft prevents shrinking, and the more fat you can get there will obviate the tendency to shrink.

Dr. Woodruff said that there are cases of cicatricial ectropion in which there is no opportunity of getting a flap, on account of the extent of the destruction of skin. In such cases, it is absolutely necessary, if anything is done at all, to use a Thiersch graft. Dr. Barker, in doing this work at the infirmary, last fall, taught us some very valuable points, and the particular point is in the dressing of these cases afterwards; not allowing any pressure upon the graft; no gauze or cotton or any pressure whatever upon the graft. In other words, it is an open method of dressing. The graft is protected by a dam of gauze bandage, fastened with adhesive strips and then a sort of a covering of gauze laid over, so that the gauze dam is protected from dirt and there is no contact with any foreign substance.

Dr. Snydacker (closing), said: First, what Dr. Remmen says is true, that you might over-correct. He didn't mention the chief objection. I neglected to state that there is an objection to this operation, which it is no more than fair to state, and that is that it destroys the outer angle of the eye. Of course, as a matter of fact, when the case is severe enough to employ such a method, we have a destruction anyway.

Of course, over-correction is never to be feared in any of these cicatricial cases. I don't think any of us who have had any operative experience in this line of cases fear over-correction because we never get it. Almost invariably, they turn around again. That has been our almost invariable experience.

That fat idea might be a very useful one. Where the adhesions extend down into the bone, and there have been adhesions upon the outer skin of the bone, I should think that a fat implant would add to the effect of the operation.

THE DIAGNOSIS OF DISORDERS AFFECTING THE PERCEPTION ORGAN OF HEARING.*

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By perception organ of hearing we have in mind that part of the auditory apparatus pertaining to the labyrinth, the auditory nerve and the auditory tract and centers in the brain.

In establishing a diagnosis we are confronted at the outset by a vast array of conditions that are factors in the presence of a disturbance in the hearing acuity. Little is known definitely as to the manner in which many of these causes operate so that in the presentation of the subject one is, *pari passu*, compelled to recite a list of names in which cause and effect are sadly mixed. Nevertheless, from a clinical standpoint one can scan with profit the following heterogeneous classification and evolve therefrom a fairly accurate working basis for a diagnosis.

In the average case presenting itself for examination a diagnosis is readily established from a few well known signs and symptoms but where greater obscurity presents itself or the exigencies of the case demand a more searching inquiry the following line of reasoning may be perused with profit.

Consider whether you are dealing with a case of:

Malingering,
Hysteria,
Malformation,
Congenital changes,
Deaf mutism,
Traumatism,
Senility,
Occupational disease (i. e. lead, arsenic, carbon dioxide, boilermaker, telephone, caisson, gunner, etc.).
Toxicity: (a) Drugs (i. e., tobacco, alcohol, quinine, salicylates, salvarsan and its allies.)
(b) Disease (i. e., cerebrospinal meningitis, rheumatism, mumps, typhoid, scarlet, influenza, diphtheria, pneumonia, osteomyelitis, syphilis, leukemia, diabetes, pernicious anemia, tuberculosis, arteriosclerosis, cretinism, smallpox, pertussis, malaria). Myxedema, general anemia, severe hemorrhage, great exhaustion and depression.
Labyrinth Disease: (a) Primary (i. e., otosclerosis, traumatism, neuritis, neoplasm, etc.).
(b) Secondary (i. e., chronic otitis media catarrhal, acute and chronic otitis media suppurative).
Disease of the Nervous System: (i.e., neoplasm, abscess, embolism, neuritis, hemorrhage, lues, in its various manifestations like endarteritis, gumma meningitis, tabes.)

It cannot be expected in a paper of this kind and on such an occasion where the time limit is so imperative that an analysis of each of these conditions be entered into. But it is essential to look them over in a general way and emphasize some of them in particular.

We must assume, for brevity's sake, that most of us are fairly secure in the knowledge of our ability to differentiate between conduction and perception disorders. Where such disturbances co-exist the difficulties are more manifest. In the neurotic and malingerer one may not feel secure in his opinion until a more thorough opportunity is given to observe the case.

It is peculiarly noteworthy that the cochlea alone may be affected and the symptoms arising therefrom, namely, tinnitus and deafness, are the only ones present and even the tinnitus may be absent. The cochlear branch of the auditory nerve seems to be selectively affected and often it is the only part involved, although more frequently the vestibular branches are also implicated, causing thereby symptoms of vertigo, incoordination and nystagmus. Under certain circumstances like those resulting from traumatism or suppuration, the vestibular part of the labyrinth alone may be affected, the patient indicating no involvement of hearing. In some of the slowly forming chronic cases the slight or entire absence of vestibular symptoms that may be or have been present can easily be overlooked if not diligently sought for; while in more active or acute cases these associated symptoms are readily detected.

In central lesions the hearing may be impaired if peripheral to the point of decussation of the auditory nerve in the medulla; while a lesion in the auditory center of the cerebrum would rarely have effect on this function owing to the decussation of the fibers below. If the lesion should occur at the point of decussation in the floor of the 4th ventricle then complete deafness might result. The associated involvement of other cranial nerves is of greatest diagnostic value.

The subject as it presents itself in its practical application is somewhat as follows: The patient is carefully scrutinized and after a few words of

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introduction can readily be classified in one of several groups. In the *first* group one can place the cases of pseudo deafness like the malingerer and hysteric. In the *second* group one can consider the defectives, like malformations, congenital changes and some of the deaf-mutes. In the *third* group may be placed those causes due to violence or trauma. In the *fourth* group consideration is given to that very large variety of conditions due in the main to acute or chronic structural changes within the ear brought about either primarily or secondarily. In the *fifth* group can be placed those cases of severe degree of deafness occurring suddenly.

First Group. The hysterical cases are usually of deafness alone, that is to say, not attended with tinnitus or vertiginous symptoms. In this class of cases they often complain of pronounced deafness occurring suddenly in some cases following an injury, but the deafness may just as suddenly change from one ear to another, seemingly without any cause. In the hysteria cases other associated signs are usually present, like anesthesia, hyperasthesia, paresthesia, various paralysis and at times color hearing; that is to say, the patient has a sensation of color on hearing certain tones.

The malingering cases require alertness on the part of the physician to detect and in these days of legislative activity and "easy money" methods at law one's diagnostic acumen must ever be on the lookout. Several tests may be used to reveal the dissembling. The stethoscope can be employed by placing the ends in the patient's ears and the handle of a vibrating fork lightly applied to the tube leading to the ear complained of. The voice may also be used by whispering in the bell of the instrument and pinching the tube leading to the healthy ear. When the Weber test is used in such cases the patient usually states that closing the canal of the healthy ear causes the sound to disappear. A normal ear tightly plugged will hear a loud watch two feet, but a patient feigning declares he does not hear the sound at all if held in front of open canal on the side complained of.

Second Group. In malformations and congenital defects where all or part of the labyrinth may be functionally absent the associated deaf-mutism or the history of a lifelong trouble are aids in the diagnosis.

Third Group. In the traumatic cases the diagnosis has to take into consideration whether the injury is an old or recent one. In recent lesions Ruttin describes three types; first, fracture with hemorrhage causing symptoms like diffuse suppurative labyrinthitis; second, symptoms similar to serious labyrinthitis, namely, the same as in the first, but with the addition of some hearing and reaction; third, symptoms of tinnitus and partial deafness with vertigo and nystagmus that is temporary disappearing in about 24 hours. This type usually results from concussion. In the fracture cases the history of the escape of spinal fluid and blood from the canal and nose, loss of consciousness and facial paralysis will assist in the diagnosis.

Fourth Group. In some cases of suppurative origin symptoms like tinnitus, nystagmus and vertigo may have been present and then perhaps only of a slight degree and finally passing away so that unless the history is probed very carefully these important links in the chain may escape notice and the diagnosis suffer.

Fifth Group. In the cases of profound deafness coming on rather suddenly the lesion is usually found in the labyrinth and results from either hemorrhage, anemia, congestion, embolism or neuritis, and the commonest causes among the diseases are syphilis, arteriosclerosis and some of the acute febrile affections.

In analyzing the symptom of deafness the first thought is what *degree* of hearing is lost, and if one or both sides. The second thought is what was the character of the *onset*, gradual or sudden, complete or partial. Third, what are the *associated signs and symptoms?*

In making an estimate of the degree of impairment of hearing one is aided by the volume and distinctness of the voice necessary in making one's self understood as well as by the attitude and expression of the patient. The crux of all tests for hearing is undoubtedly the conversational voice. But for the purpose of measuring in an exact way the hearing that is present and for determining the variety of the disorder causing the impaired hearing and as a matter of study and keeping record it is essential to make use of the various means for making functional tests. If inspection of the aural canal and nasopharynx reveals neither cerumen, tumor, tumefaction or destruction as the cause, then it is necessary to measure the amount of hearing present by using the voice, the forks and whistles.

In conducting these tests, remember there are

three varieties of otosclerosis; the first where the bone changes are limited to the oval window causing ankylosis of the stapes; second, ankylosis and changes in the cochlear spiral, and third, cochlear spiral involvement only.

In otosclerosis the Weber test is lateralized to the worst ear. Rinné is usually negative with small "a" fork (64 d. v.), but may be positive but then shortened. Schwabach is prolonged unless it is third variety, then, like in nerve involvement, it is lessened or even absent.

Gelle is negative, due to ankylosis.

L. T. L. elevated.

U. T. L. lowered in the second and third varieties, at least in certain areas, constituting the so-called "island deafness."

The drum is normal and the tube patent, Paracusis Willisii pronounced.

These tests correspond to the findings present in O. M. C. C. excepting, perhaps, Gelle, which is positive, providing the stapes is not ankylosed. The diagnosis between these two diseases is made from the age, the effects of the weather, "colds" and noises, on the hearing, appearance of the drum, condition of the tube before and after inflation and the contributing causes.

In nerve deafness the tests enumerated are reversed from those found in otosclerosis and O. M. C. C. with slight variations. A vibrating fork on the mastoid of the affected side is usually referred to the healthy side, especially if the canal of that side is plugged. Hearing is worse in a noise.

A defective hearing that is improved by extraneous noises (paracusis Willisii) suggests fixation of the ossicular chain, particularly the stapes. If the hearing is made worse by such noises it suggests perception disorder. Pitch deafness may exist; that is to say, hearing a note at a different pitch than the one sounded. A deafness associated with diplacusis suggests neuritis. This diplacusis may be one where the pitch differs in either ear (dysharmonica), or the sound may be heard simultaneously. There is another variety spoken of by Gradenigo as monaurilis, where two tones of different pitch are heard in one ear. The speech of a deaf person may be strikingly loud or soft according to the integrity of their bone conduction, which is significant of a labyrinth disorder in the former and of a conduction trouble in the latter. Hallucinations as to various sounds, like the playing of music, singing of birds and noises of animals are suggestive of a mental disturbance. In employing the whisper test select words and numerals of sibilant sound like 6, 60, 66, 30, sister, ice, that will disclose the perception deafness as the low pitched tones like 5, 10, 100, Robert, doctor, are readily heard; for in-perception disease the high tones are the ones impaired first, the U. T. L. is lowered and the bone conduction is reduced, except in otosclerosis with ankylosis. After fifty years of age bone conduction is often reduced. The use of the large "A" and small "a" forks in addition to the regular Hartman set, Edelman whistle and the monachord are necessary in making a differential diagnosis in difficult cases.

In studying the character of the onset we know that a deafness, either of mild or extreme degree, with gradual onset and progressive, extending over a period of a year or more and with no demonstrable cause, is suggestive of either a chronic catarrhal otitis, otosclerosis or certain types of neuritis. A deafness of rapid onset or even sudden occurrence with or without other symptoms suggests cerumen or labyrinth disease. Of the labyrinth disorders several causes must be considered. When an immediate deafness occurs accompanied by severe tinnitus, nausea and vertigo, often causing the patient to fall, although rarely losing consciousness, we have a syndrome of symptoms known as Meniere's symptom complex. In this condition there is a disturbance of the normal poise of the entire labyrinth, the vestibular portion is irritated and the hearing portion disqualified. Such labyrinth conditions may result from hemorrhage or embolism of the internal auditory artery or from its vestibular or cochlear branches separately. The underlying causes are usually acute fevers, lues, leukemia, pernicious anemia and acute nephritis. An aneurysm of the basalar artery, from which the auditory artery arises, must also be considered. Where the onset is not quite so sudden at the same time recent and very severe in degree, the possibility of a polyneuritis of the acoustic nerve due to some toxic cause must receive attention. In other cases of still slower onset but of progressive deafness one must not neglect to consider degenerative changes of the acoustic from pressure exerted by bone changes, as in otosclerosis and periosteal thickening from lues at the internal meatus.

A deafness in a mild degree coming on rather suddenly preceded usually by a fine ringing tin-

nitus and accompanied by a feeling of "fullness" about the ear and frequently autophonia is due most likely to some form of tubal obstruction.

In suspected syphilitic cases a Wassermann test of the blood should be made, and if found negative a spinal puncture with examination of the fluid should follow. As recent investigations by Finger, Altmann and Dreyfus, et al., have shown that any case of syphilis may involve the central nervous system, affections of the perception apparatus may be looked for in the early as well as the late stages of this disease.

It is difficult to consider this subject thoroughly unless reference is made to the static ear and the conduction apparatus. In looking for *associated signs and symptoms* arising from the static ear and brain centers, such as head and ear noises, pain and its various modifications, nausea, vomiting, vertigo and nystagmus, we should take occasion to test the stability of the static labyrinth and its associated centers by first noting the presence or absence of spontaneous eye and head nystagmus, corporal stability and normal pointing and then by the employment of such tests as the fistula, caloric, electric and turning, determine their degree.

An individual with normal static apparatus responds to certain well known tests causing vertigo, incoordination and nystagmus. The nystagmus of vestibular origin is jerky and is made up of a slow and a rapid movement of both eyes and differs from the oscillating nystagmus that is essentially optical in origin. The direction of the nystagmus is determined from the side of the rapid movement. The slow movement is produced by the vestibular (peripheral) reflex, sending the eye balls in one direction and their return to the normal position is the rapid movement (central). For instance, turning the head to the right (being the stimulus) sets the endolymph flowing, which stimulus in turn is imparted to the ampullary hairs in the horizontal canal. In the right horizontal canal the lymph is displaced towards the ampulla (always the maximum stimulation in the horizontal canal) while in the left horizontal canal the lymph is displaced away from the ampulla, hence causing the lesser stimulation. The increased right side stimulation causes contraction of the right abductors and left adductors of the eyes, the left labyrinth given the lesser stimulation to opposites, and thus there results slow movement of eyes to the left followed by a rapid voluntary return to the opposite side, hence horizontal nystagmus to the right. Stop the turning suddenly and the lymph current is reversed and there results an after nystagmus to the left. If nystagmus is induced by sudden and extreme turning of the eyes to the side it is indicative of irritation either in the labyrinth or cerebellum. The irritation is in the labyrinth if the nystagmus occurs while looking towards the healthy side and in the cerebellum when turning towards the affected side. Nystagmus is of three degrees, namely, to one side only, to one side and to the front, and to both sides and the front. The amplitude should be noted.

Compression and *exhaustion* of the air in the external ear canal (known as the fistula test) has no effect of irritation normally. Occasionally a piece of hardened cerumen or a foreign body pressing on the ear drum causes dizziness. In the presence of a suppuration irritation of the labyrinth may be elicited by this test when erosion of the walls has occurred. This was established as the result of Ewald's experiments, who showed that whenever the cupola was moved by compression it was pushed or compressed away from the canal, causing a nystagmus to the opposite side, while suction caused a reversal to the same side. Touching the eroded area with a probe will cause vertigo and nystagmus and even the forcible blowing of the nose as shown in a case presented by Dr. John R. Fletcher.

Sudden and extreme *thermic changes* of the labyrinth fluid causes it to expand or contract. For this test water is used in a syringe or irrigator. To get the best effect the fluid should come in contact with the sensitive labyrinth wall, the most exposed parts being the anterior part of the horizontal canal and the ampullar end of the anterior vertical canal. This is permissible in a discharging ear but in a dry perforation it may be the cause of re-establishing the discharge. In such cases air may be used in testing. If the ear is syringed with cold water, head erect, the fluid in the anterior vertical canal contracts and flows towards the utriculus causing a rotary nystagmus of the eyes to the opposite side and simultaneously a horizontal nystagmus results from a current towards the ampulla of the horizontal canal. Using hot water in place of cold causes a rotary and horizontal nystagmus to the same side. Water of body temperature causes no nystagmus.

Neither would nystagmus result if the canals were destroyed or absent.

Placing an individual in a revolving chair, with head erect and eyes looking forward, and *rotating* him steadily and regularly and fairly rapidly ten times produces a horizontal (primary) nystagmus to the same side as the direction of rotation for thirty to fifty seconds, if observed while still rotating or upon very gradual stopping. It can also be felt by the observer's fingers on the closed lids of the patient. Should the rotation be stopped suddenly then the nystagmus is directed to the opposite side (after nystagmus). If the head while rotating be held sideways forty-five degrees oblique nystagmus results; if held sideways ninety degrees (posterior vertical canal) vestical nystagmus results; if held well forward (anterior vertical canal) a rotary nystagmus to the opposite side results, and if held backward a rotary nystagmus to the opposite side results. The nystagmus in all instances is augmented with the eyes directed towards the side of rapid movement.

In the *pointing test* the arms, hands and fingers are used. The patient's ability is first tested before syringing or turning. Standing with eyes closed, he may by a free hanging and swinging motion of the arm try to touch the observer's finger or his own nose or finger of the opposite hand. After syringing or turning, with eyes closed the arms one at a time are brought from the hanging position up and forward in the median line to touch the observer's finger, any deviation is noted. After syringing with cold water the left ear pointing is to left; with hot water the reverse. Movements from the elbows and wrist may also be tried. On standing he falls to same side.

The *electric tests* are made with the galvanic current. This test differs somewhat from the others just mentioned in that the current acts directly on the nerve itself, while in the other tests the reaction results first through changes in the lymph current. In applying the test the cathode (negative) electrode is applied to the tragus and the anode indifferent, patient looking straight forward. A current of about four M. A. causes in a normal ear rotary nystagmus towards cathode on closing circuit and to opposite side on opening circuit. If the ear is irritable from disease one or two M. A. suffice, provided the nerve is not destroyed. If more current is necessary the nerve is likely destroyed.

Ruttin's classification of nystagmus is convenient to use in diagnosing disease of the labyrinth and is as follows:

Circumscribed serous labyrinthitis:
- Nystagmus is horizontal and rotary to opposite side and also same side.
- Fistula reaction present.
- Caloric reaction present.
- Hearing present.
- History of labyrinth symptoms.
- Turning reaction present.

Diffuse serous labyrinthitis:
- Third degree nystagmus to opposite side and occasionally the same side.
- Caloric reaction usually present.
- Fistual reaction usually absent.
- Hearing impaired.
- No history of labyrinth symptoms.

Acute purulent diffuse labyrinthitis:
- Third degree nystagmus to opposite side, continuous for two days both on lying down and standing.
- Fistual reaction absent.
- Caloric reaction absent.
- Hearing absent.
- No history of labyrinth symptoms.

Chronic purulent diffuse labyrinthitis:
- No spontaneous nystagmus but may sometimes be induced.
- All tests absent.
- History of labyrinth symptoms.

Dr. Holinger referred to Dr. Stein's systematization of the different causes as for the purpose of teaching, and suggested that it is much more important to systematize in those cases where you can do something than in those where you are more or less powerless and helpless.

One of these groups, the first group; pseudo deafness, you all know what you can do, and in hysterical deafness and the similar forms, it is a question of the nerves, just as well as of the local treatment. Defectives are hardly ever amenable. In the traumatic cases, it is a question of the real traumatism. In the fourth group, the acute and chronic inflammatory changes are very often amenable. The fifth group is profound and certain deafness. The writer did not note the very large group, the most important and the most grateful to treatment, himself, the group of deafness due to different poisons; poisons produced by the organisms as well as introduced into the organism from the outside; for example the deafness produced through a siege of typhoid fever—post typhoid deafness, post diphtheric deafness, and so forth; deafness by infectious diseases. Some of these you cannot do much for, but, on the other hand, there is quite a number of them where you can do considerable, and they are almost all of the nervous type. Furthermore, the cases of deafness due to poison introduced from the outside, like quinine, salicylic acid—we know now

that in smoking, nicotin carries a great influence on the nerves. In those cases we are almost powerless. And the last group is hard hearing due to old age.

He would add as a sixth group, the deafness due to the different forms of poison, and a seventh, deafness due to old age.

Dr. Gradle noted that up to a few years ago, twenty-three cases had been reported of deafness that occurred with reference to sympathetic ophthalmia—cases of complete deafness of the labrynthian type, developing through the course of a sympathetic ophthalmia. The cause of it is still only in the theoretic stage. Fortunately it is a rather rare case, but it is of sufficient interest to warrant further study and any cases that can be found should be reported, in order to obtain some valuable statistics.

Dr. Stein thought the objection offered by Dr. Holinger might be met by replying that the cause of the first class of cases he mentioned, is covered among the list of causations. This subject might be divided into a great many more groups, but the idea in teaching is, of course, to condense things as much as possible.

The type of deafness mentioned by Dr. Gradle, of course, is not really covered in this, but he thinks it might be brought under one of these groups.

THE VALUE OF THE SKIAGRAPH IN THE DIAGNOSIS OF MASTOID DISEASE.*

GEO. E. SHAMBAUGH, M. D.,
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The diagnosis of pathological changes going on in the mastoid process presents difficulties peculiar to such bony cavities. An intelligent analysis of the subjective symptoms and a careful interpretation of the data observed in the examination of these cases very often leave little doubt regarding the pathological changes going on in the mastoid process. On the other hand, there are cases where, after all such data have been carefully examined, there will still remain a doubt as regards the character and extent of these pathological changes. It is in these latter cases that the skiagraph may prove of great assistance. When we remember that in mastoid disease, just as in disease of the nasal accessory sinuses, the conclusions reached by other methods of examination are often so accurate as to make the use of the skiagraph superfluous, it becomes evident at once that we should have a clear idea, first, as regards the cases of mastoid disease where we can reasonably expect some assistance from the use of the skiagraph and, second, as regards the value of the skiagraph in these cases.

As regards the cases where the skiagraph may be of assistance: This is restricted for the most part to the cases of mastoiditis occurring as a complication of acute otitis media. In chronic mastoid disease the skiagraph gives very little data that can assist in deciding the important question whether the disease is one which should be treated by local measures or whether surgical measures should be employed. Fortunately, a careful examination of the clinical evidence leaves little room for doubt, in most instances, regarding this important question. Surgical interference is restricted now to those cases where there is a distinct element of danger of a serious complication resulting from the disease. It is only in cases where the disease process is invading the bone that we need fear such complications. The presence of a bone-invading process, whether from a cholesteatoma or caries, can, as a rule, be readily diagnosed by a careful examination of the case. As a matter of fact, it is only the exceptional case of chronic purulent otitis media which requires surgical interference, since most of the cases are not dangerous and require, therefore, only local measures. In the chronic cases, the skiagraph is not only superfluous but when employed can hardly be expected to give any information that can assist in diagnosing the character and extent of the process invading the bone. The reason for this becomes clear when we remember that the data received from the examination of the skiagraph have to do chiefly with the changes in the pneumatic type of process. In cases of chronic purulent otitis media where we might wish for assistance from the skiagraph the pneumatic character of the process is absent, either as the result of changes brought about by the chronic inflammatory disease, or because the onset of the otitis media in early life has prevented the normal pneumatization of the process from developing.

The situation is quite different in regard to the diagnosis of mastoid disease complicating acute otitis media. Here we are not infrequently left in doubt, from other methods of examination, regarding the character of the changes in the mastoid, and it is in just these cases where the skiagraph may be of great value. We should, however, not lose sight of the fact that in most

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of the cases of mastoid disease complicating acute otitis media other methods of examination leave very little for the skiagraph to add and that the general use of the skiagraph in all cases is quite unnecessary. It is important, for these reasons, that we should know when the assistance of the skiagraph should be called for. There are two classes of cases where this may be of assistance: First are the cases where there is no external evidence of mastoiditis and, second, the cases where external evidence of mastoiditis is present but where we are left in doubt as to the character of the pathological changes in the mastoid. As regards the cases where no external evidence of mastoiditis is present, it is not at all uncommon for a mastoid abscess to develop with extensive softening of the bone, leading eventually to an intracranial complication without any changes on the outer surface of the mastoid, and where there is not even tenderness on pressure. In such cases the presence of the mastoid abscess can be suspected from the continuation of a profuse purulent discrage longer than three or four weeks, the presence of a rise of temperature, even though this be slight, and the persistence of headache, usually restricted to one side. In these cases the skiagraph usually gives very definite information of abscess formation, where the bony partitions between the pneumatic processes have melted away, and thus allows one to proceed with the mastoid operation without further dangerous delay.

When we come to the second class of cases, those where external evidence of mastoiditis is present, but where the diagnosis of an abscess or softening of the bone is not readily made by other methods of examination, the skiagraph again is of great value. Clinical evidence of mastoiditis is present in the majority of cases of acute otitis media. This evidence consists of pain over the mastoid, associated, as a rule, with tenderness on pressure and even with some edema. It is, however, a well-known clinical fact that the great majority of cases showing such evidence of acute mastoiditis recover spontaneously and that it is rather the exceptional case, even with these symptoms, that goes on to the formation of an abscess requiring a mastoid operation.

I am inclined to believe that there is probably no other place in our specialty where the treatment is so frequently bungled as in just these cases of frank mastoiditis complicating acute otitis media. With the possible exception of unnecessary operations in cases of chronic purulent otitis media, there are, I believe, more unnecessary operations for these cases of acute mastoiditis than in any other field of our work. The classical rule laid down by Schwartze in regard to the management of these cases is as applicable today as when first made, and yet from what I have seen and from what I have heard in discussions, I am convinced that this rule has been forgotten by many otologists. The rule is that, barring unusual symptoms, cases of acute otitis media presenting the evidences of mastoiditis pointed out above, do not require operation unless the stormy mastoid symptoms continue unabated under rational treatment for a period longer than eight days after the free drainage of the otitis media has been established. How often have we seen such cases recommended for operation when the mastoid symptoms have been present only three or four days! The operator on opening the mastoid is too apt to conclude when he discovers free pus in the cells that the operation was justified, whereas free pus is not in itself an evidence that the operation was necessary. It is rather the evidence of softened bone or the presence of an abscess cavity that justifies the operative interference in these cases. It is this information that the skiagraph is often able to give us, very often before the existence of such change can be determined positively from the clinical evidence in the case. The transillumination of the mastoid as a means of diagnosis falls far behind the value of the skiagraph. The former may show the presence of a mastoiditis, but it does not help us differentiate between the cases which may go on to spontaneous recovery and those where the changes in the bone already preclude such a possibility. The skiagraph shows distinctly the presence of a mastoiditis, but what is of greater value, it will also very often give positive evidence of softened bone or abscess formation. (Skiagraphs were exhibited showing both these conditions.)

SUMMARY OF CONCLUSIONS.

1. The skiagraph has a definite value in the diagnosis of mastoid disease.

2. It is rarely of any assistance in chronic cases in differentiating between those which call

for local treatment and those which require surgical measures.

3. Its great value is in acute cases, not only in showing the presence of abscess formation in cases where no external evidence of mastoiditis is present, but in differentiating in the cases showing mastoid trouble between those where the reaction may recover spontaneously and those where a softening of the bone calls for a mastoid operation.

DISCUSSION.

Dr. Pollock commended Dr. Shambaugh's conservatism in the radical cases and also in some of the acute cases. He had been much elated over some of the good results that have been attained by local treatment in these supposedly bad cases.

One of the advantages of taking a mastoid picture is the comparison of the two sides.

The mastoids in individuals are almost alike, but in the other sinuses, for instance, the sphenoid, there is a great variation.

He takes a skiagraph in all cases, unless there is a big bulging ready to burst before the patient gets to the hospital.

One patient, seventy-one years old, with an acute mastoid, and labyrinth irritation, with a history of mastoid discharge ten years previous, he treated locally and now, after five months, the ear is entirely healthy; no more discharge, and the labyrinth irritation symptoms have disappeared, and the hearing is normal.

Dr. Stein asked whether Dr. Shambaugh had observed, in his skiagraphic work on the mastoid, and could tell when complications were present, especially whether those cells that are hidden below the hypotympanum, just below the region of the tympanic cells, were diseased.

Dr. Williams inquired about taking a skiagraph of both mastoids on one plate. He had always been accustomed to do that and found it a very convenient way of comparing the mastoids on a single plate.

In one case of apparent primary mastoid with a slight temperature lasting for about three or four weeks, some tenderness over the mastoid which didn't clear up, he took a skiagraph and found one mastoid very cloudy, with the cells broken down, apparently, in the picture, and on the strength of that and on the strength of the radiographer's diagnosis, opened the mastoid and found it perfectly normal. It got completely well in five or six weeks, which would indicate that there was not any pus in the mastoid, although the picture certainly showed it.

Dr. Kavanaugh emphasized the importance of having the plate taken by somebody who knows how and read by one who understands it.

Dr. J. C. Beck, the chairman, was surprised that Dr. Shambaugh and Dr. Pollock both neglected one of the most important and valuable features of x-ray work, because they did not note its value in chronic suppurative conditions, as to the pathology. He can show pictures, x-ray pictures and stereoscopic pictures in chronic suppurative conditions where he can outline certain definite pathological changes differing one from the other.

He advocates taking the picture, operating and later studying the picture, which will give a surprising amount of valuable information.

Dr. Shambaugh, as to the recognition of those tympanic cells that divide from the floor of the tympanum in an x-ray plate, had no doubt at all that a well-taken plate would show a cell there, but whether it would differentiate between a cell of that kind that was infected and one that was not, he would not say.

One case where there was a complication where he had a chance to make a plate, is a case of sinus thrombosis, and he did not recognize from the plate the existence of the thrombus after the operation.

In regard to making a plate of both mastoids at once, he advised the method to which one is accustomed.

In regard to the question that Dr. Beck has raised about the value of the stereopticon, at one hospital they made the stereopticon view, and the opinion of the men who have had this experience is that there was practically no difference in the value of the picture they were able to get from one plate or the other. The important question is whether you have a type that requires operation or whether it does not require operation. That fact can be ascertained by the clinical observation, without the use of the x-ray, almost without exception. That the x-ray will show you if there is extensive disease of some type or other may be true, but you get your information that you need for an operation from the clinical examination of the case.

TREATMENT OF CHRONIC CONSTRICTION OF THE EUSTACHIAN TUBES.*

ALEXANDER S. ROCHESTER, M. D.,
CHICAGO.

The procedure which I am about to describe has been found by me to be of particular value in those cases of chronic middle ear catarrh which are benefited by Eustachian catheterization, but which, in spite of a practically normal condition of the nares, always lose the beneficial effects of the inflation in from a few hours to several days.

The operation is not to be recommended if there are any gross lesions existing in the nose, such as greatly enlarged posterior ends of the inferior turbinates, adenoids, a badly deflected septum, or any anatomical disarrangement which does not give the proper breathing space. Any such condi-

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tion occurring in a case of chronic constriction of the Eustachian tubes should, of course, first be given the proper operative attention by the physician before thinking of applying this treatment. The use of the actual cautery in the post-nasal space has, contrary to expectations, been found by me to be attended by very little reaction. Not once have I had the slightest unpleasant complication in either of the five cases in which it has been used.

Allow me to state at this time that the galvano-cautery has, with every year of its use in my hands, more firmly established itself as a most valuable instrument, which, when used carefully, moderately and judiciously in the practice of rhino-laryngology, is found to give no unpleasant results and to render a very great service. It has been much condemned by many in the past, but this condemnation I feel sure must have usually been engendered by the contemplation of some unhappy results brought about by the improper and too generous application of its power.

The very successful results I have seen it accomplish when used to bring about shrinking in intumescent conditions of the inferior turbinates, led me to extend its use into the post-nasal space to attack the swollen, congested tissues sometimes found lying about the opening of the Eustachian tube.

The method of procedure is as follows: The case has usually been under observation for some time, and on account of having been carried through a course of Eustachian catheterization, the exact location of the mouth of the Eustachian tube is well established in the mind of the surgeon. He has found just which size and shape of catheter is most easily introduced into the opening.

The cautery apparatus used consists of two rather heavy copper wires properly insulated, bound together and connected at the extremities by the platinum tip. This instrument is flexible and capable of being bent into any shape desired, but is of sufficient stiffness to retain its new shape. The catheter which has been found to most easily fit into the Eustachian tube opening is selected, and the cautery is molded into a duplicate of the shape of the catheter. After properly cocainizing and shrinking the nasal tissues, the cautery is introduced into the nose and into the same position assumed by the catheter when inflating the ear.

The operator now practices finding four points, each about five millimeters above and below, before and behind, the opening of the tube. This is done by cautiously working the tip out of its exact apposition in the opening of the Eustachian tube, and then slightly twisting the cautery up and down, and partially withdrawing and over introducing it. After having familiarized himself with the four points he wishes to cauterize, he begins by placing the tip on the superior location and proceeds to cauterize that point. It is not desirable to burn deeply, and this is best accomplished by having the rheostat adjusted to a maximum degree of heat, and the cautery is held in place only an instant after the current is turned on. It is then pulled away from the post-nasal wall, with the current still on, the current being disconnected immediately afterwards.

The other points selected are then cauterized, the anterior one being taken last. It has been my habit, when making this last application, to draw the cautery forward and partially over the posterior end of the inferior turbinate. This last movement give us a linear burned area extending from the anterior cartilage of the mouth to the Eustachian tube forward into the posterior root of the inferior turbine.

The whole operation is accomplished in a very short-time, and in no case has it seemed necessary to use any particular dressing. The part has only been smeared over with carbolized vaseline, and the patient instructed to use an atomizer containing a weak menthol oil solution.

As soon as the reaction, which is very slight, has subsided, the catheterization is begun as before the operation, and in each case the Eustachian tube has shown a marked improvement in its ability to remain free.

Since adopting this measure, my attention has been drawn to an article by Dr. Sluder of St. Louis, who reports the technique of an operation somewhat similar to the one I have described, in which his results are said to be most gratifying. It is with much satisfaction that I also note in his article the report of his long and satisfactory use of the galvano-cautery on the inferior turbinates.

As the cases in which this procedure is definitely indicated are somewhat rare, I have only been able to make use of it in five cases, and their histories are as follows:

Case 1. Aged 50 years. Had been somewhat deaf

for 5 years. Before seen by me he had had a submucous septum operation performed, with good results. On examination the inferior turbinates showed an intumescent condition and a chronic tubotympanitis. After catheterization, the tubes remained open, and hearing would remain improved for almost one day, then gradually become dulled. I first did a linear cauterization of both inferior turbinates, with very good results. Both nostrils remained free, and the breathing space was ample. The tubal condition, however, did not improve, so one month later I performed the cauterization about the mouths of both tubes. The ears were catheterized two weeks later and the catheterizations continued once a week for four weeks, at the end of which time they were discontinued. Since then, three months ago, the hearing has been greatly improved and the tubes open.

Case 2. In this case the cauterization was done only on one side, as the whole trouble was confined to one tube and ear. A large spur had been removed from the septum six months before I saw the patient, but there had been practically no improvement in the condition of the tube or hearing. A series of catheterizations and use of the Eustachian bougie did not bring relief, so the cauterization was done. The hearing began to improve in one week, and the tube remained open.

The next three cases need hardly be reported in detail, as they were quite similar, and a general summary is all that is necessary.

They were all cases of chronic middle ear catarrh of from two to four years' duration. The anterior nares of each had been put in the best possible condition, but in spite of this, combined with a proper course of inflation of the middle ear, by means of the catheter, the tubes still continued to close on the least provocation, causing the usual increased dullness of hearing. After cauterization as described, the cases were all improved as to hearing, and as to the general condition of the Eustachian tubes.

COMPARATIVE VALUE OF INDIRECT AND DIRECT LARYNGOSCOPY.*

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Every laryngologist knows how much may be accomplished by means of indirect laryngoscopy. What may be done with the direct method is not so well known. It is hard to realize why the possibilities of this method have been so neglected. Except for a comparatively few men we find an apathetic attitude in regard to this procedure that, to say the least, is unprogressive. When it comes to the examination of the larynx and trachea in infants and young children the direct method bears the same relationship of importance to the perfection of laryngology as the discovery of the laryngoscope bears to its development.

Under direct laryngoscopy we include the examination with the open or closed tube speculum and suspension laryngoscopy. For ordinary routine examination of the larynx, it is hardly probable that the indirect method will be superseded. Even in direct work it is always advisable, if possible, to make a laryngoscopic examination preceding the use of the speculum. This applies particularly when there is hoarseness, dyspnea, or other evidence of obstruction in the respiratory tract. In infants or young children, the laryngoscope often can not be used satisfactorily. In making the direct examination in these cases some authorities advise having within reach a suitable sized bronchoscope which should be introduced in case spasm of the glottis comes on. Where dyspnea of marked degree is present, due either to a supraglottic or infraglottic swelling or edema, any manipulation either through examination or operation, may cause an increase in the swelling which may necessitate intubation or tracheotomy.

In an article in collaboration with Dr. E. F. Ingals which was read before the A. R. L. and O. Society, June, 1911, the following indications were given for the use of the direct method:

1. The removal of impacted or imbedded foreign bodies in the larynx and the recovery of those that are in a position inaccessible with the employment of the indirect method.

2. For diagnosis of laryngeal conditions in infants and young children with whom the indirect method can not be employed. Among these conditions may be mentioned papillomata, stenoses, congenital or acquired, malformations, etc. Under this heading may also be included the treatment through the direct method of these conditions: e.g.; the removal of papillomata, etc.

3. For inspection of certain parts of the larynx or trachea that are invisible or at best poorly seen with the use of the mirror, such as the posterior wall, sub-glottic space or under surface of the cords. The treatment of various lesions in these locations may be carried out perhaps to some extent better than by the indirect method.

4. The direct method may at times give a better picture as to the natural limitation or extensiveness of a lesion in the larynx.

To these may be added a fifth indication: Intubation

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and extubation. The latter is quite easily done by the direct method. The former at times presents some difficulties. It necessitates the use of a speculum of the Mosher type, as the teeth offer an obstruction to the head of the tube when the open speculum is used. In some conditions its use seems preferable to the older method especially where long tubes are required as in tracheal stenosis.

The development of suspension laryngoscopy marked a decided step in advance in our specialty. The advantages of this method over the simple direct method lie in the fact that the operator has both hands free. With suitable instruments much more delicate and thorough work can be done in the larynx. Suspension laryngoscopy is a hospital procedure and unless carried out under general anesthesia is extremely uncomfortable to the patient. From the early literature it may be gathered that its use is indicated in almost every condition of the throat, hypopharaynx, larynx and trachea. As is usual with all new methods later investigations have placed some limitations upon its indications. It is of special use in tubercular laryngitis as the field may be exposed to better advantage and the operative procedures carried out more effectively and thoroughly. In removal of the epiglottis the hemorrhage can be controlled better. If curettage or the galvano-cautery is used a more accurate application is possible. In these cases the question of anesthesia is an important one. Ether and choloroform are contra-indicated. Local anesthesia alone is apt to be unsatisfactory. Levy of Denver has used scopolamine-morphin with satisfaction, but we must not overlook its dangers.

Non-malignant growths in the larynx, particularly in the parts usually difficult of access, such as under the cords or where the growth is extensive, as is found in multiple papilloma, offer a favorable indication for suspension. The removal of growths in the anterior commissure may prove difficult with either the direct or indirect method. Tumors and other lesions in the hypo-pharynx and in the region of the mouth of the esophagus are also favorable for the suspension method. The use of suspension in bronchoscopy for the removal of foreign bodies from the bronchi has not met the expectations of some of the early advocates of this method. In the larynx, sub-glottic region and trachea, the operation can be done readily, but general anesthesia, which in itself is not always advisable or without danger, must be employed.

In the writer's own experience the limitation of movement of the bronchoscope by the tooth plate of the suspension apparatus offers a decided handicap for satisfactory work. We find that those who formerly advocated it now remove the suspension apparatus after the bronchoscope is in position. Some operators in performing bronchoscopy only use suspension in children. I can see no advantage in this. It has the disadvantage that a general anesthetic, which is dangerous, must be used. Besides this added danger the operation is prolonged. The adjustment of the apparatus also lengthens the time which may be a decided factor as far as the well-being of the patient is concerned. In malignant growths of the larynx, suspension is not the method of choice and is not at present advocated. Much better results are apt to be secured by thyrotomy.

The views embodied in the preceding part of this paper are largely those of men who are doing considerable work in this field. We may conclude, therefore:

1. That there is an interdependence of one method with the other.
2. That the indirect method for routine examinations, treatment and certain operative measures will continue to fulfill the ordinary requirements of the larynogologist.
3. For the examination and for the removal of foreign bodies in the larynx of infants and young children, the simple direct method where no anesthesia is required occupies a field of its own.
4. That suspension laryngoscopy has definite surgical advantages that can be attained in no othter way where extensive operative or treatment procedures are required in the larynx and trachea.

EXAMINATION OF THE DISCHARGE IN MASTOID DISEASE.*

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The purpose of this paper is not to enter into a discussion of the bacteriology of purulent otitis media and its complications, but to call attention to two other findings in the microscopic examination in the discharge, i. e., bone debris in the acute and subacute cases and epidermal cells in the chronic cases.

It is generally agreed that in most cases of

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acute purulent otitis media the mastoid cells are diseased. There is no doubt that the majority of acute cases with mastoid involvement recover without a mastoid operation. It has fallen to the lot of most otologists to have watched cases which failed to clear up as they should and which showed none of the ordinary signs of mastoid abscess and yet upon opening the mastoid it was found full of pus and the mastoid cells broken down.

On the other hand, we see cases showing most of the ordinary symptoms of mastoiditis recover without operation.

That neither the blood count, nor bacteriological findings, nor the constitutional disturbance, nor the ordinary local symptoms can be depended upon to give a correct index of what is going on in the mastoid is generally admitted. The lack of constant relation between symptomatology and pathology has caused the writer to look for and to investigate other indications.

The transilluminator and the x-ray have been of material aid in some of the obscure cases, but of even more value has been the microscopic examination of the discharge. In examining for bone debris a rather thick smear is made and immediately dried and fixed with heat. The slide is stained lightly with hematoxylin, washed, dried and examined with a low power objective. Bone particles appear very dark or black in a comparatively light field. These particles have the property of taking the stain and of not giving it up in the washing process. If the slide is stained too deeply we do not get sufficient contrast to differentiate between the bone particles, when present, and the soft structures. Care must be exercised to avoid dirt and dust. The specimen should be taken from the deeper part of the canal or beyond the membrane, especially if the canal has been exposed to the air.

The clinical value of this examination lies in the fact that so long as there is no breaking down of the bony partitions between the mastoid cells it is possible or even probable that the mastoid disease may clear up without operation. When, however, the breaking down process begins bone debris will appear in the pus and the indications are clear for operative interference.

A single case is selected for illustration, only the salient features being given:

Miss S., aged 19 years, had been under the care of her physician for ten days for acute purulent otitis media. She complained of a dull, heavy feeling on that side of the head. When I examined her I found the temperature 99.4 degrees, pulse 84. No tenderness or perceptible swelling over the mastoid or in the auditory canal. There was a suspicion of thickening about the mastoid attachment of the sternocleidomastoid muscle, and the transilluminator showed a deep shadow in mastoid of that side as compared with the opposite. There was a small perforation with a profuse discharge. Examination of the discharge for bone particles showed nothing suspicious. There was no change in the appearance of the pus for four days when a few suspicious particles appeared. The next day they were present in abundance and operation was advised. The following day the mastoid was opened and bone necrosis found.

This case, with many others of like character, together with those that recovered without operation when bone debris was not found, leads to the conclusion:

1. That in the absence of bone debris in the pus, no other complications appearing, the waiting plan is indicated and is comparatively safe.

2. That when bone debris is found immediate operation is justified.

I would not take the ground that when bone debris is present it is impossible for the patient to recover without an operation, for I have seen cases recover spontaneously after most of the mastoid process had come away as necrotic sequestra. When, however, a mastoid operation becomes inevitable, the sooner it is done the sooner the patient will recover, and the less will he be subjected to dangerous complications. When the surgeon can study the condition of the pus, it gives him a better idea of what is going on in the mastoid and greatly adds to his sense of security in the management of his acute and subacute cases.

In the chronic cases of purulent otitis media one of the frequent causes of the chronicity is the presence in the antrum or mastoid of an epidermal lining. When the drum membrane is destroyed or when the perforation extends to the margin the skin of the auditory canal sometimes pushes through, encroaches upon and replaces the mucous membrane lining of the middle ear. The natural tendency of the skin to exfoliate is found in this field as in other skin surfaces. If the exfoliated layers are retained in the mastoid or antrum a mass forms which is called a cholesteatoma. This keeps up the discharge, leads to pressure absorption, and is in time likely to invade the labyrinth or cranial cavity.

When there is an epidermal lining of the antrum or mastoid, epidermal cells, either singly or in layers, can usually be found in the discharge.

In examining for these cells a thick smear is made and stained with methylene blue. The cells themselves seem to have undergone a sort of waxy degeneration and do not take the stain as well as the surrounding mucous and pus cells. The pus should be taken if possible from the middle ear cavity as this avoids confusion with macerated epidermis from the external surface of the drum membrane or the auditory canal. When there is found an abundance of epidermal cells, singly or arranged in layers, it points strongly toward surgical treatment of the case.

THE DANGER OF INCOMPLETE EXAMINATION IN NASAL CONDITIONS.*

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A discussion of the complaints and their correction of a small portion of the human anatomy is seemingly of little consequence to the body politic; but if methods and principles can be evolved which would be the means of bettering that body, their use would be justified. When medical societies consume valuable time in reviewing medical achievements without making any addition to our knowledge or formulating methods and plans for the intelligent use of the facts we already possess, it usually leads to a state of inaction and in the majority of instances seals the fate of those societies for any further usefulness. Likewise any doctor of medicine or dentistry who neglects to investigate thoroughly the conditions present and their causes and, therefore, fails to suggest the proper remedies to bring about the alleviation of the abnormality is guilty of almost criminal negligence.

The Supreme Court of Washington affirmed a judgment for five hundred dollars ($500) damages for an alleged wrong diagnosis and ensuing treatment based thereon.[1] The court says that the law is, of course, well settled that a physician is liable for a wrong diagnosis of a case, resulting from a want of skill or care on the part of the physician, and followed by improper treatment, to the injury of the patient, but, unless improper treatment follows, a wrong diagnosis gives no right of action.

The well equipped rhinologist of today undertakes his labors with such exactness of purpose and confidence of success that he inspires his patrons with the utmost faith and trust.

This appreciation on the part of the patient is increased or diminished in the same ratio as are our successes to our failures. Hence, by employing every means at our command, we should prove our skill in determining an exact diagnosis.

The infant of a few weeks with a nasal obstruction might tax our ingenuity to learn the cause. Not discovering it, the gravest consequences might follow. Some years ago I happened to have such a case in my care and it was not until after a most exhaustive examination that I was able to decide that the condition was due to syphilitic infection contracted from nursing its mother who had acted the good Samaritan in nursing another child who was a subject of syphilis. Later the mother had a chancre of the nipple and passed through her secondaries.

At the early school age the diagnosis and treatment are less difficult, but occasionally a complete diagnosis is questionable after a gross or even a microscopic examination of a growth on account of the similarity of structure in different neoplasms. Early in the year 1911, a woman spoke to me about her only child, an 8-year-old son, who had recently commenced to snore during sleep. I suggested that she should bring him in for an examination. A few months later she conferred with me again not about making an examination or an operation, but to inform me that his tonsils and adenoids had been removed; that a severe hemorrhage had occurred from the adenoid region, that he had been kept in the hospital for six weeks, that the growth had been examined and the laboratory had reported the diagnosis of round-celled sarcoma—cancer. What a terrible shock! The laity knows too well what the word means. The mother was greatly distressed and hoped against hope that I might suggest some extraordinary remedy to rescue her precious boy from death. But I could give her little comfort for a skilled rhinologist aided by a renowned pathologist had determined the condition present and gave a fatal prognosis. However, I recommended the x-ray. Four or

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1. Justice et al. vs. Littlefield (Wash.), 151 Pa. R., 180; Jour. A. M. A., Vol. LXVI, No. 10, March, 1916.

five treatments were given, but hemorrhages and headaches following, the treatments were discontinued and I did not see the case again until the spring of 1912, when I was requested to make a hurried call at the home, and learned that something unusual had happened. Upon my arrival I found the lad much emaciated, a mere skeleton. The left eye was bulging, the left cheek protruding, and there was total nasal obstruction. In the open mouth there was a dark mass of tissue, parallel with the tongue, accompanied by a most offensive discharge. It was the sudden appearance of this black mass that caused the excitement and my sudden summons to the bedside. I noticed that this was a displaced process of the tumor twisted upon itself which had become strangulated. A section was removed and submitted, with the history, to the pathologist who had given a diagnosis of sarcoma, for examination. A report of a round-celled fibroma was returned.

On July 12, I removed, through the mouth, a large growth from the naso-pharynx. Today, almost four years after the operation, the boy is enjoying perfect health.

In *middle life* thoroughness in diagnosis is still our watch-word. A man forty years of age, a tailor by occupation, had an extensive intra-nasal operation for chronic frontal sinus disease. Although his sinus symptoms were relieved, he suffered greatly from dryness of the nasopharynx. No local treatment alleviated his condition. He was advised to change his environment. Accordingly he became a collector of old iron in the country, driving a horse and wagon. Six months later he had gained forty pounds in weight and informed me that his nose and throat gave him no further annoyance. At this time in life nasal obstructions are frequently due to systemic disorders which are often overlooked in treatment; such disorders as nephritis, chronic syphilis, arteriosclerosis and other conditions causing high blood pressure. These should be thoroughly investigated prior to any operative procedures on account of the unhappy consequences that may ensue without effecting a particle of relief.

The following case illustrates in a measure what might have happened if the turbinate had been partially or wholly removed as a relief to the nasal obstruction.

In 1893 I met a young man of robust physique and excellent habits, employed as cashier in a large freight office owned and conducted by the Chicago & Northwestern Railroad Company. Later he became successively secretary, manager and president of a brewery company. In 1911 he consulted me for nasal obstruction, dyspnea and periodical attacks of epistaxis. After a thorough examination of the nasal cavities and finding an excessive congestion of the tissues and no apparent local cause and being familiar with his personal history since his affiliation with the brewery I summoned to my assistance an expert internist.

Dr. A. R. Elliott of Chicago returned the following report:

Systolic blood pressure..... 200
Diastolic blood pressure..... 130
Right heart insufficiency.
Hypertension.
Mitral murmur.
Galloping rhythm.
Cardiac arteries sclerosed.
Hepatic sclerosis.
Hyaline and granular casts in the urine.

What had brought about this deplorable condition? The habitual over-indulgence in drinking spiritous liquors. Here our attention is attracted to the absurdness of expecting to relieve this man's nasal obstruction, dyspnea and nose-bleed by any kind of local or operative procedures. Indeed, the hemorrhage was his safety-valve and any attempt to prevent it would have endangered his already serious condition.

In a résumé of these four cases we observe in Case 1:

The accidental transmission of syphilis to an innocent babe. A disease as old as the world and as prevalent in large centers of population as at any time in history. We are proud of the results of research in making us acquainted with that elusive parasite, the *spirochete*. Let us hope it will not be long before we are as conversant with its habits and modes of life as we are with those of the tubercle bacillus. So satisfactory have been the results in the application of remedies for syphilis that the laity and many physicians believe that all that is necessary to eradicate this destructive robber and murderer is a vial of 606 or a few doses of mercury and iodide of potassium. We have been so engrossed with the *cure* of syphilis that I am afraid we have often forgotten the advantages of prophylaxis. I think medical men should endeavor to educate the public in sex hygiene, especially in regard to the prevention of syphilis. If this child's mother had been taught, when at school, how to protect herself from such a perilous infection, neither she nor her offspring, presumably, would have become its victims.

In Case 2, the character of the neoplasm

spelled life or death for that boy. Embryonic connective tissue cells, in certain stages of their development, so closely resemble certain forms of sarcomatous cells that even expert microscopists are unable to differentiate them. A mere accident caused a second examination. The history strengthened by the pathologist's report made for successful results.

In Case 3, there was an insufficient amount of normal tissue to meet the increased nasal physiological demands occasioned by the indoor habits, impure air, and sedentary occupation, the left naris having been deprived of its middle turbinal in the treatment of the frontal sinusitis, so by changing his occupation and his environment, i. e., transferring him to an active country life we greatly lessened these demands on the nasal tissues. We increased his resistance and thereby aided in promoting a subsidence of all irritation and secured for him a comfortable feeling in the nasopharynx.

Case 4 reminds us that a nasal obstruction beginning after middle life, not occasioned by local infection nor an acute or a chronic condition (of adjacent structures), nor by neoplasms, benign or malignant, nor by trauma, should be considered as a result of some general condition the exact cause of which must be discovered before intelligent treatment or any relief can be expected.

In concluding this discourse, I desire to point out the advantage of writing case histories as assistance in making correct diagnoses aside from the benefit of having the histories for future reference. I am aware that most physicians keep full histories of their patients, but there are still a goodly number of careful, conscientious practitioners who neglect this important duty. The printed history headings are of advantage. Loose leaf history sheets, printed or blank, are very satisfactory indeed. The printed form saves time, but many men prefer dictating their own methods to a stenographer or writing the histories themselves. In jotting down notes systematically from headings, details are considered which otherwise might be overlooked. Such an oversight often results in a mistaken diagnosis and treatment of the case.

If, on the one hand, you are not competent enough to make your own analysis or, on the other hand, lack time for it, utilize a good pathological laboratory, for you will not only get a vast amount of information for your own special use, but, because of careful, painstaking interest, your own efficiency must relatively increase. Thus, through thorough and scientific efforts, you will attain to an even greater degree of success and be filled with the buoyant, inspiring knowledge of labor well done.

REVIEW OF THE PRINCIPAL OPERATIVE MEASURES ADVOCATED IN THE REMOVAL OF THE FAUCIAL TONSIL.*

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ABSTRACT.

There has been much said and written upon the subject during the past few years. Therefore, a review made among the men doing this particular line of throat work will be of value as by it we will obtain the true pulse of the profession regarding methods that have been adopted and are being followed as the best and safest.

Ten questions were mailed to three hundred throat specialists living in all parts of the U. S. A. as follows:

1. What do you consider the principal and safest operative measures for the removal of the faucial tonsil?
2. Which method do you use the most?
3. Do you prefer general or local anesthesia?
4. What per cent. of your cases require the use of artery forceps at the time of operation on one or more vessels?
5. What is your per cent. of post operative hemorrhages?
6. How many days do you find before the throat is usually healed?
7. Do you give after treatment?
8. What per cent. of your cases recover with both sides of the throat alike in appearance?
9. Are you using any original plan in doing this operation?
10. Kindly offer any suggestions that you might think will be of value to all in a reveiew of this kind.

Up to date one hundred fourteen replies have been received, which show the following results: To question No. 1, with regard to the various operations for removal of the tonsil, there were

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in all seven methods suggested: Sharp knife, enucleation, dissection and snare, guillotine, finger dissection, cautery knife, scissors and circumcision.

To question No. 2, with regard to the method preferred: circumcision 1, scissors 1, cautery knife 1, finger enucleation 3, sharp dissection enucleation 10, guillotine 17, dissection and snare 81.

Question No. 3, with regard to anesthesia: seven use local in all cases, 52 use local in adults and general in children, while 55 use general in all cases.

The replies to question No. 4, with regard to the use of artery forceps at the time of operation are quite interesting: 2 use them in 100 per cent. of their cases, 2 in 75 per cent., 1 in 60 per cent., 4 in 50 per cent., 1 in 25 per cent., 2 in 20 per cent., 4 in 10 per cent., 11 in between 1 and 6 per cent., 86 use them in none or less than 1 per cent. of their cases.

Question No. 5, relative to post operative hemorrhages, shows that 37 have been fortunate enough not to have had, as yet, their first case of post operative hemorrhage, while 77 have only had from one to three cases each.

Sixty-eight men claim the throat is thoroughly healed under ten days, while 46 say that it takes more than ten days in the average run of cases.

With regard to the use of after treatment, 55 use some form of after treatment, while 59 do not use anything at all.

Sixty-seven find both sides of the throat alike in more than 50 per cent. of their cases, while 47 find theirs alike in less than 50 per cent. of cases.

In reply to question No. 9, with regard to using any original plan, 37 are using some or in part original ideas, while 77 are following out methods suggested by others. The last question, No. 10, with regard to any suggestion that might be of value in a survey of this kind, has brought out suggestions from 65 and I am here to say that most all of them are very valuable ones, but at this meeting, time will not allow me to discuss them, but I desire to say, to those that might be sufficiently interested in a work of this kind, that I have brought with me the original replies, so that you may have the opportunity to examine them personally, after this meeting is over, if you so desire.

THE PROGNOSIS AND TREATMENT OF THE COMMON INTRACRANIAL COMPLICATIONS OF NOSE, THROAT AND EAR INFECTIONS.*

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The prognosis of intracranial complications having their origin in nasal infections possesses an entirely different aspect from that of those having their source in aural disease. Especially is this true as regards the acute processes. Meningeal irritation, for instance, has a more sinister meaning when it appears in nasal disease than it does when it occurs in ear inflammations. The reason for this is not simple. The vascular and nerve intercommunication is not as great in the middle ear as in the nose. The thickness of the osseous tissue which surrounds the middle ear has a tendency to ward off inflammatory processes from the cranial cavity, and even in those rare cases where the softening action takes place with great rapidity within the mastoid, plastic material usually successfully protects the meninges from invasion. Indeed, the dura itself seems to possess greater powers of resistance in the temporal region than it does in the anterior fossa. Again, in our operative procedures we find that the nasal accessory sinuses may be much more inaccessible than are the pus-containing cavities of the ear. Especially is it true that even with the most painstaking care and well-seasoned skill the eradication of every suppurating focus in the ethmoid labyrinth may present the greatest difficulties. I speak here of external operations—the only method to be employed in dealing with suppuration within the accessory sinuses when the invasion of either the orbital or cranial contents is threatened in acute or chronic infections. Further, intranasal operations in acute conditions may be highly hazardous. I have known of four cases in the last two years which have terminated fatally, in which portions of the middle turbinate bodies have been intranasally removed in the first week of inflammation of the anterior series of cells. In my opinion, those cases of acute frontal sinus and ethmoid disease demanding immediate operation

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1. J. A. M. A., Sept. 21, 1912.

constitute the rarest exceptions. Non-operative treatment is by far the more successful and less dangerous in the largest number of such cases. This does not hold in subacute and chronic cases. Here intranasal procedures may be attempted, provided intracranial or orbital complications do not threaten. If such complications do impend, the external route is safest.

Wounds of the frontal sinus are especially liable to lead to unexpected disaster unless very carefully scrutinized. Stab wounds may penetrate the inner wall and yet have a very small point of entrance, which may heal by first intention. The brain symptoms at the time may be very trivial. But on the appearance of meningeal symptoms, the frontal sinus is opened, the cavity is found to contain pus which, infecting the wound in the inner wall, has been communicated to the arachnoid cavity. Such cases have a very high mortality. All penetrating wounds in this region should, therefore, be carefully examined immediately, and if the frontal sinus is found to have been penetrated, the sinus should be opened and its inner wall scanned for a break in its continuity. If this is found, the wound in the inner wall should be enlarged, disinfected and the dura, if that is punctured, drained. Magnetizable bodies should be removed by the magnet at the earliest moment, and the external wound should not be sealed.

With these preliminary remarks, I shall proceed with a brief resume of my knowledge, from personal experience, regarding meningitis, sinus thrombosis and brain abscess in connection with nose and ear diseases. As I have many times before said, I have never yet seen a case of general suppurative leptomeningitis recover, and when one views the arachnoid space in these cases post-mortem one must be convinced that it is impossible to drain by any operative means at present in our power this enormous and complicated region.

Pachymeningitis, on the other hand, is a comparatively harmless condition. Considerable quantities of pus may lie beneath the dura without giving any pathognomonic signs, and are frequently discovered only at operation. This may not be said of intradural abscess, as occasionally occurs in infection of the saccus endolymphaticus.

Here we probably invariably have symptoms referable to the labyrinth, besides signs of irritation of the arachnoid. That *circumscribed* septic meningitis may recover, I am convinced, whether from local drainage of the arachnoid cavity or by simply removing the infected area in the ear is a question in my mind. Here we find, in just these cases of circumscribed septic meningitis, that those affecting the anterior portion of the brain, as compared with those affecting the posterior fossa, are less liable to recover.

Suppurative meningitis of otic or nasal origin cannot be differentiated immediately from serous meningitis. They both may give the same symptomatology—headache, stiff neck, the same degree of fever, photophobia, Babinski and Kernig; the clinical findings of the cerebro-spinal fluid, taken by lumbar puncture, may be the same, with one exception—that is to say, we may have absence of globulin, absence of sugar, increased acidity, great increase in the cytologic count, and bacteria in both types of the disease. In suppurative meningitis that is not sealed off we recover viable microorganisms; in serous meningitis or localized plastic meningitis that is sealed off we do not.

Up to the present I believe that if we cannot recover viable microorganisms, the prognosis is infinitely better than in cases where we do recover such viable bacteria. It is true, there have been cases reported where viable microorganisms have been recovered and the cases terminated in recovery. However, I feel that such cases may not be above suspicion of contamination due to an error in technique in withdrawing the spinal fluid. We should be infinitely careful of our asepsis, carefully scrubbing the skin, washing with alcohol, and painting with iodine. It is unnecessary to say that the needle and the instrument used for measuring the pressure of the cerebro-spinal fluid should be carefully sterilized, the hands encased in gloves—in fact, every means employed that we use in the nicest aseptic technique.

It is held by some that a serous meningitis is but the first step in a septic meningitis. Clinically, however, I believe it is exceedingly important to differentiate the two, especially in view of the extreme mortality of one and the harmless character of the other.

I am inclined to the belief that if we remove the offending foci which cause meningeal irritation we have done about as much as surgery is capable of doing. I am not in favor of drainage of the arachnoid space through the septic wound

which we make in evacuating the suppurating foci in the temporal bone or in the nose. I think it is better practice, if we are inclined to drain the cerebro-spinal fluid from the arachnoid spaces, to make our entrance in an uninfected region, either in the temporal or frontal region. However, I think that all such efforts are futile. I do believe, however, that repeated lumbar puncture has a favorable influence on the course of serous meningitis or even circumscribed meningitis in the temporal region. It certainly relieves the symptoms, temporarily at least, of pressure and temperature, thus decreasing the headache and the stiff neck, as has been repeatedly observed.

Injections of medicinal substances into the arachnoid space by lumbar puncture after the withdrawal of equal quantity of cerebro-spinal fluid have not proven as beneficial as we once thought they would be. Administration of hexamethylamin I am inclined to think is beneficial —at least, I am in the habit of administering this drug in large doses, ten grains every two or three hours, accompanied by bicarbonate of soda, dissolved in a glass of water.

Vaccines and sera in the streptococcus variety of infections have been disappointing, though there are some other observers who have faith in them from their experience.

One of the most frequent paths of infection of the arachnoid space is the transmission of septic material from the labyrinth after it has become secondarily infected from disease of the middle ear.

It is important here to remember that quite a revulsion of feeling has taken place in America within the last three years against the dicta promulgated by the Vienna school as regards these affections. We now know that it is exceedingly difficult to differentiate at once in many cases between serous labyrinthitis and septic labyrinthitis. When once the labyrinth was involved in the course of a suppuration in the middle ear the German school advised immediate exenteration of the labyrinth, either by means of the Neumann operation or the Jensen operation, and this in the midst of the stormy symptoms that characterize such involvment, such as deafness, vertigo, vomiting and nystagmus. I believe that such procedure is most often unsafe; it may even add to the danger of invasion of the arachnoid space, causing meningitis. Even in septic suppurating labyrinthitis we have quite a dependable agent for the protection of the arachnoid space in the plastic inflammation which may be set up in the perivascular spaces of the nerve through which the cerebro-spinal fluid passes from the perilymphatic spaces of the ear to the arachnoid cavity, as well as in the ductus cochlearis.

I have, therefore, been in the habit of waiting in these cases and not operating upon the labyrinth until these symptoms subside, with the exception of those cases where symptoms of meningeal irritation are present or viable microorganisms are recovered from the spinal fluid. In such cases our best chance lies in labyrinthine exenteration. I do not, however, wish to be understood as hesitating in certain cases to remove the suppurating foci in the mastoid at once by means of a radical operation, as these cases nearly always occur in chronic suppurative otitis media. But I am inclined to think even such operations should in the majority of cases be postponed until the stormy symptoms on the part of the labyrinth have subsided, as the trauma incident to a radical opermation may throw the balance toward meningeal invasion.

Septic Thrombosis of the Lateral Sinus. The prognosis of sigmoid sinus thrombosis depends largely on the timeliness of operation. Delay means added danger, but hurry is frequently fatal. Delay that is sufficient for a clear diagnosis adds to safety. We should be careful in all our cases to exclude all diseases which may stimulate sepsis due to sigmoid sinus thrombosis, the principal of these being malaria, erysipelas and tonsillitis. Once, however, we are assured that there resides within the sigmoid sinus a suppurating focus, we should immediately resort to surgical interference. There are several ways recommended for this procedure. One is to simply uncover the sinus and leave the thrombus undisturbed. To my mind, this is an unsafe procedure. The next method is to open the sinus and leave the thrombus in place, merely packing the sinus open. This, I believe, is an unsurgical procedure, as it does not accomplish all that may be accomplished in removing the infected focus. Another method, and the one that I have adopted for many years, is to open the sinus and remove the thrombus, and then pack the sinus walls open.

An interesting question comes in here as to

when we should tie the jugular. Some radical operators believe that we should, before opening the sinus, tie the jugular, in order to prevent the spreading of infectious particles from the thrombus, to the general circulation, from the necessary manipulations which we have to employ to remove the thrombus. I am not altogether in accord with this view. My experience has led me to believe that the best method is to open the sinus, remove the thrombus, and if we cannot obtain hemorrhage from the lower portion to then tie the jugular—not only tie the jugular, but dissect out a portion of the jugular between the upper and lower ligations. The upper ligation should be above the facial, and the lower below the inferior thyroid vein. The intervening portion of the vein should be resected, because it is not by the microorganisms within the thrombus that the clot spreads, but through invasion of the walls of the vessel itself by the pathogenic organisms. It has been necessary to go farther down in the neck and tie off close to the thoracic vessels, at the origin of the jugular. Especially is it necessary to tie the jugular in isolated primary thrombus of the jugular bulb. In such cases we may get a very profuse hemorrhage from the sigmoid. Our only hope is to ligate below. It is a difficult matter to reach, in the large majority of cases, the jugular bulb directly, as in Grünert's operation. It is easier and safer, I believe, and just as effective, to pack above in the sigmoid sinus, tie below, and sew the lower end of the jugular to the skin. In this way after a few days we are able to flush the jugular bulb from below upwards.

Also, in cases when metastasis has already occurred the jugular is resected as a preliminary to opening the mastoid.

I will say but a few words regarding thrombosis of the cavernous sinus, a condition which may arise by spreading of the septic process through the sinus petrosus superior, from sigmoid sinus thrombosis, or through the ophthalmic in nasal suppuration. I have as yet not done the operation of opening into the cavernous sinus. It is a question in my mind whether this is a warrantable operation.

Brain Abscess. The prognosis of brain abscess is always grave. The situation of the abscess has a great deal to do with the surgical outcome. Those abscesses that can be traced from the infecting source have an infinitely better prognosis than those situated at a distance from the infecting source and separated by intervening healthy brain tissue. In the former case the abscess has what is aptly called a stalk, which may be traced from the tegmen antri or tegmen tympani directly into the body of the abscess. In such cases the arachnoid is safely sealed up. In the other form of abscess, where intervening healthy tissue separates the mastoid and middle ear from the infected brain mass, we have to explore by puncture. Two additional dangers here are added, which are not present in the former form of abscess. *First,* we are liable in our exploration to infect the arachnoid space, if we are fortunate enough to strike the abscess. *Second,* the abscess is very frequently missed altogether, even with the most careful exploration. But even here we are not safe from infection of the arachnoid space by our futile efforts at finding the abscess if we explore from the septic cavity in the mastoid. No matter how exactly focal diagnosis has located an abscess, these dangers are not removed.

Where exploration is necessary, the subarachnoid space should be packed off after incising the dura, and the packing left in place for twelve to twenty-four hours before the brain tissue is explored. In this way we as nearly as possible prevent infection of the leptomenix.

The best drain is the glass drain—at least, for the first forty-eight hours, when the cigarette drain may be substituted, if there are no large quantities of pus being exuded. There is great danger in insufficient drainage in brain abscess. Very frequently such abscesses are multilocular and drain with great difficulty one into the other.

The great danger in operated cases, as well as non-operated, is a tendency to break into the ventricles, when, of course, death supervenes very rapidly.

Prophylaxis. Above all, the most valuable point in the treatment of these terrifying intracranial complications is prevention. All chronic suppurative diseases of the ear, and I may say the nose, with some reservations, which resist palliative measures or non-operative measures, should be eradicated by surgical procedure. This does not mean that every chronic running ear should be destroyed by the radical mastoid operation. This does not mean altogether that every chronic running ear is a menace to life.

A discussion of the indications for the radical operation would go far beyond the purpose of this

paper, and yet, in a way, it belongs justly to it. I believe this subject, however, is to be covered by another paper on the program, and I will not touch upon it here further than to say that a suppurating ear disease which resists intelligent, adequate local treatment, and in which the discharge is abundant and contains in it bone chips, or cholesteatoma, or even cholesterin crystals, should be subjected to an operation. Not that all these cases menace life, but that it is difficult in such cases to tell just which are the menacing cases and which are not. The same may be said of chronic suppuration in the accessory sinuses. But, as I remarked at the beginning of the paper, it is much more difficult to gain access to every suppurating focus in the nose than in the ear. Many of these cases do well enough by intranasal surgical measures, facilitating drainage from the frontal sinus, for instance, by taking away the anterior portion of the middle turbinated body and opening into the anterior series of ethmoidal cells. However, to reiterate again a very important point, to my mind, whenever there are symptoms of meningeal irritation, or where the orbit is threatened with invasion, we should resort to the most radical external means of reaching the foci affected, such foci being located by the most careful and painstaking rhinological examination, supplemented by the x-ray.

22 East Washington Street.

DISCUSSION.

Dr. Stein agreed with the essayist that the prognosis of intra-cranial complications following suppurative processes in connection with the ear is better than that following similar complications following those in the nose, but said one would think that it would be the other way, when one considers the lymphatic circulation of the nose and the brain. One would rather expect that there would be less opportunity for intra-cranial complication, the lymphatic circulation being such that it flows from the interior toward the nose and by separate lymphatic vessels comes through the surface of the ephithelial cells, as well as filling the nasal sheet. One would think that if there was infection traveling by way of the lymphatics, there would be less likelihood of infection in the intracranial region of this particular route. He thought a possible exception was the kind of cases that follow intranasal operations, not of the cutting type, but cauterization, particularly of the inferior turbinate.

He knew of cases where death followed, due to an intra-cranial complication and an infection taking place by way of the ear. Now, we know that we can have ear complications following intranasal cauterization, but why the ear complication following upon the nose condition should produce death more than it would if it was primarily an ear trouble, is the interesting point.

In explanation of the infection causing meningitis with more virulency in the nose than in the ear, he suggested that in most of these cases complicating the ear, it is an infection that has existed for years, and perhaps there is a lessened vitality of the organism, whereas the infection occurring from the nose is usually from injury or from operation.

Dr. Woodruff quoted Dr. Gifford of Omaha to the effect that sympathetic ophthalmia may follow cauterization of a prolapsed iris, and suggested that possibly the eschar perhaps made by cauterization of the nose might be more capable of picking up infection than otherwise.

Dr. Arbuckle inquired whether Dr. Pierce removes the section containing the thrombus or whether he leaves it after he has tied off the jugular.

Dr. Pierce: I understood Dr. Arbuckle's question was, "Do I remove the vein between the upper ligation and the lower"?

Dr. Arbuckle: Yes.

Dr. Pierce: Yes, always. And not only that, but I try to cut way beyond the danger point and resect out a healthy portion of the vein. The thrombus is not extended so much by the pyogenic organisms within itself as by those in the vessel wall.

The point regarding the difference in prognosis, as regards the intra-cerebral complications of the anterior and posterior portion of the brain is not so much centered on the fact that it occurs more frequently, but that once it occurs, it is more deadly. We can readily understand that the lymphatic system and the vascular system is very much more intimately associated with the cranial contents in the region of the nose than in the middle ear. But when once meningeal symptoms show in connection with nasal disease, and especially acute nasal disease, the prognosis is greater than if those same symptoms of meningeal irritation occurred in middle ear inflammations.

DO YOU KNOW THAT

One million two hundred thousand Americans die each year, it is estimated?

Heart disease, pneumonia and tuberculosis cause more than 30 per cent. of deaths.

Sickness lowers earning capacity?

The U. S. Public Health Service is the nation's first line of defense against disease?

ILLINOIS MEDICAL JOURNAL

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State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

SEPTEMBER, 1916

Editorials

HELP NOMINATE THE DOCTORS.

Next week, September 13, the state primaries are held. At this primary election are nominated the candidates for the state offices, and all of our members should be interested in placing in nomination men who, while making legislation, consider favorably the medical profession.

More particularly we should help those physicians who are sacrificing their practice that they may benefit the profession through legislative work that treats the profession fairly. Every member of this society should make an effort to help nominate and elect brother members to such offices as they are seeking.

In the Eighth District Dr. A. J. Markley is seeking nomination on the Republican ticket for State Representative. Dr. Markley is now treasurer of our society, and a more loyal, worthy or capable representative could not be found.

Dr. Sam W. Latham of Eldorado is soliciting the nomination on the Republican ticket for Lieutenant Governor. Every member of the society will have an opportunity to vote for him.

Dr. A. L. Mann of Elgin is up for nomination in the Fourteenth Senatorial District for Representative.

Dr. P. J. H. Farrell is looking for nomination on the Democratic ticket of the Ninth Congressional District for United States Congress. He, without question, should be elected, and it is up to the doctor to go to the front.

Dr. C. A. Hercules of Madison is running for State Representative in the Seventh District. Our members in these districts should see that these men are nominated and elected.

Dr. W. O. Nance, Chicago, who has done excellent work in the Chicago Council, is up for Trustee of the Sanitary District, and by all means should be elected.

Dr. W. F. Burres of Champaign, who has done so much work for desirable medical legislation as a member of the State Legislature, now seeks nomination for State Senator. There is no more loyal member of the State Society than Dr. Burres.

If the members do their duty, every one of these men will be nominated and elected. If the members are negligent, they will not be nominated.

Doubtless there are other doctors who are candidates for representatives from their respective districts, or for some other public office, but up to this date we have not the information.

Now is the time for the society to help the legislative committee, and now is the time to stand by these doctors, who are willing to sacrifice their time, and who will look after medical interests after election.

DR. FARRELL A CANDIDATE FOR CONGRESS.

Dr. P. J. H. Farrell is a candidate from the 9th congressional district for the Democratic nomination at the primary, September 13.

Dr. Farrell has served the Chicago Medical Society as councilor, secretary and as trustee and in these offices his ability and energy as an organ-

izer and director have made him one of our best known members.

The profession and the medical press have for years been urging doctors to seek public office, where their experience in dealing directly with the people in their homes, in looking after their physical and material welfare, in learning the needs of the community, makes the doctor an ideal representative in the legislative chambers.

The medical profession should have representatives in Congress and in Dr. Farrell we have a practicing physician, familiar with medical organizations, medical men, their professional and economical problems. A man thoroughly familiar with official life in Washington, where he is well and favorably known.

There is no limit to the energy of the doctor. While a surgeon in the army he commanded the first United States soldiers that landed in the Philippine Islands and received from the war department "honorable mention for bravery under fire of the enemy." When San Francisco was destroyed he organized the Chicago Relief Expedition and in 24 hours was on his way to the stricken city with 100 trained nurses and 25 physicians and medical and surgical supplies for 20,000 patients, receiving the thanks of the Mayor of San Francisco and the Governor of California for the help rendered during the two months of dire need. He was one of the organizers of the Boy Scouts.

Every doctor in Chicago, particularly those in the 9th district, which embraces the north side from the Chicago river to Irving Park boulevard, should interest himself in the nomination of Dr. Farrell and his subsequent election. He would be an honor to the profession, and a powerful force for the public good.

DR. NANCE A CANDIDATE.

Dr. Willis O. Nance, alderman for the Sixth Ward in Chicago the past five years, announces that he is a candidate for member of the Board of Trustees of the Sanitary District on the Republican ticket at the primary, Wednesday, September 13.

Dr. Nance has been a very active member on several important committees of the City Council —Finance, Local Transportation and Health. On the latter committee he has been exceedingly active in the introduction of ordinances relating to health and sanitary matters. Physicians, especially, will appreciate his efforts along these lines. As a member of the Board of Trustees of the Sanitary District he will be in a position to still further advance public health interests.

NOTICE.

Owing to the great increase in the cost of print paper the JOURNAL would ask the members sending in contributions, notices, society reports or other matter for publication to reduce them in length so far as is possible.

The increasing cost of paper is a question of serious concern to all publications. The ILLINOIS MEDICAL JOURNAL receives much material for publication which we would like to publish if space permitted. We have never had sufficient space to publish all that should have been published, and at the present price of paper it is not practicable to enlarge the JOURNAL. In fact, it may become necessary to reduce the size. In order that we may be able to publish as much as possible we ask the members to condense their manuscripts as much as possible.

DR. JAMES E. STUBBS.

In the demise of Dr. J. E. Stubbs the medical world lost a splendid practitioner, and humanity, a noble benefactor.

It is the old, old story coming up through the pangs of fighting one's way through college, standing at last in the great world where great events chase each other, and the door opens to the brave man. He was an enthusiast in his profession. His patient must be saved at any cost. To him humanity was above price, and many a struggling family has cause to bless him for the unpresented bill.

A careful student he was in his profession. His rich medical library and his support of medical journals attest his devotion to his calling. He was posted and progressive. New theories did not sweep him off his feet. What he adopted had been carefully weighed; nor was he slow to discontinue an idea because it, for the time, was unpopular.

He was state medical examiner for Illinois for the Royal Arcanum for nearly twenty-five years.

Men are apt to be narrowed by their professions, especially if they are enthusiasts. Not so with him. There were so many qualities rich and

generous that made him brother to all men. A lover of nature, nay, a devout worshipper of earth's grandeurs, for many years his vacations were spent in western Colorado, mountain climbing and trouting. Those crags and peaks will miss his bold climbing. Yet behind mountain grandeur and lovely scenery he found a resting place in the All-Father.

How he could be an omnivorous reader surprises one. His library is graced with biography, travel, history, noblest fiction, with which he was most familiar.

The great questions that affected his fellows made him an enthusiastic student, and where any were to be settled by ballot, he conscientiously gave his vote for the betterment of the race.

His home was all in all to him, and if anything earthly can be called paradise, that describes the life within the walls of his habitation.

For many years the cross statements of Bible students made him restless, but he struck the happy truth that God is outside of the Bible, while He may inspire it, and like a good God, He is giving His life to uplift humanity. There he rested.

For many years he was a member of a scientific club, in which he took an active part.

For fifty-two years his office was open, and though oft with faltering step, he was there to hear the call of the suffering. When he obeyed the last call his friends, devoted and loving, covered him with myriads of flowers he loved so well

A member of the Phi Gamma Delta, cherished by its members, six stalwart youths bore his noble form to its last resting place.

Member of the Chicago Medical Society, Royal League, Royal Avenue Congregational Church, Plymouth. CONTRIBUTED.

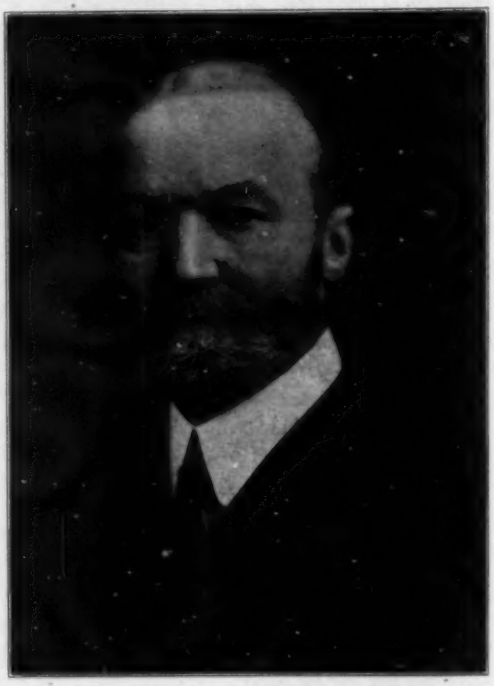
JOHN B. MURPHY, M. D.

Born December 21, 1857. Died August 11, 1916.

Who can realize that the restless, indomitable willed, magnificent and commanding man, John B. Murphy, is dead? The announcement came with a shock and stunned our sensibilities beyond power to realize. In the passing of this brilliant man the profession, yea humanity, has suffered a severe loss, at a time when his career was at its fullness. There was no sign of decadence or that the sunset of his life was at hand.

Born in Appleton, Wisconsin, fifty-eight years ago, he early gave evidence of genius, and though his life seemed cut short, from the viewpoint of years, in achievement he had no peer in his generation.

It would be impossible in the scope of this short obituary to scan his achievements or review his honors. A pioneer and pathfinder, he blazed the way from epoch to epoch with the torch that genius ever carries, nor did he ever doubt his light which at once displayed and discovered new truths and illuminated old ones with the lightnings of his mind. Genius asks no confirmation



John Benjamin Murphy, M. D.

of its own vision. Under the inspiration of his teaching the dullard became a master and he ever imbued the student mind with a contempt for the "maxims of a low prudence."

High and serious minded, he ever pointed to the clear heights of surgical achievement and possibilities. He was easily the greatest debater in the profession, and to the fog of discussion he brought clarity and argument irresistibly convincing.

Who can ever forget that commanding figure of the amphitheater—the keen glance, the rapid

move, the incisive word, alert and sharp; intrepidly he worked, all the while uttering surgical truths and driving them home in a manner forceful, unique and distinctly his own. But sad to say this brilliant career was not without sorrows. Few were qualified to meet him on his exalted plane, and meeting there, found him irresistible in competition. He out-measured his rivals, though in the vicissitudes of life's contention not infrequently encountered the spirit which would debase the merit they could not contend with, or behold his

"March to Distinction's meridian height;
While pale-eyed envy sees him climb
And sickens at the sight."

but the feature of sorrow resulting from such disappointment added grandeur to his face.

His labors are over, as also his contentions. Death throws a pale cold light on the bier and achievements of this big man. Under these white rays the perspective and retrospective appear transfixed by a livid piercing distinctness, and the mountains of his achievement tower to our vision. New merits are seen and values beheld in increasing dimensions. "The Grave potentializes the Man."

Behold his operative skill; and added to the deftness of technique was the always present anxiety for his patient's safety. Wherever you look you see him the pioneer, on the surgery of the appendix; the Murphy button and cholecyst; enterostomy; intestinal anastomosis; compression and surgery of the lung; surgery of the nervous system; his work on the kidney; anastomosis of blood vessels; brain surgery; surgery of the bones and lastly surgery of the joints, excelling everything of the past. He had an affirmative intellect and a constructive mind.

He was a prolific writer and numerous of his monographs are consigned to immortality. As a teacher he was most impressive and held the important chairs in Rush Medical College, College of Physicians and Surgeons and Northwestern University in succession. All the high places in medical organization were his. President of the American Medical Association in 1910, the highest honor within the gift of the profession, president Clinical Congress of Surgeons of North America, president Chicago Medical Society, one of the founders and regent of the American College of Surgeons. All the important Medical and Surgical societies enrolled his name and numerous honorary memberships were conferred not only in America, but also in England, Germany and France. Titles were conferred by Universities of Notre Dame, LL. D., University of Illinois, Catholic University of America, University of Sheffield, England, and lastly the Pope made him a Knight of the Order of St. Gregory the Great.

This tireless man worked on till the end and put more life in a single year than most men in a lifetime. Taxing his physical strength to the extreme in the intense pursuit of what his vision held before him until from fatigue and overwork he fell ill, as though with a crash, when on the afternoon of August 11—he was suffering —he was tired.

"God's finger touched him and he slept."

Dr. Murphy, souls of thy type shall not sink to dust, the words thou hast uttered, the work thou hast done, will live as long as medical and surgical history will be written and read, nor will the eroding finger of Time erase the record of thy genius.

In reverent mood I pay this tribute to thy memory. A. Augustus O'Neill.

THE ILLINOIS STATE MEDICAL SOCIETY IN 1854.

The following letter of Dr. E. R. Larned accompanied a most interesting 112-page pamphlet, which will be highly cherished among the archives of the Society. The official list of members contained only 59 names, including eight in Chicago. The three official representatives of the profession in Chicago were H. A. Johnson, representing Cook County; N. S. Davis, Mercy Hospital, and D. Brainard, Rush Medical Society. That looks more like the English system than our present method of County Society representation. That the present organization may be traced to that meeting is indicated by the following resolution introduced by Dr. Davis:

"Resolved, That a committee of three be appointed to obtain the names of the regular members of the profession throughout the state, with their addresses; and to use their influence to procure the formation of County Medical Societies in all those counties where none exist."

Under the resolution the president appointed Drs. Samuel Thompson, of Albion; H. A. Johnson, of Chicago, and A. B. Chambers, of Toulon.

Another resolution of interest prohibited the

election to membership of candidates "in any way connected with, or interested in, the sale of patent medicines and nostrums."

That the annual meetings were intended solely for scientific purposes might be inferred from the resolution unanimously adopted as follows:

"That the Committee of Arrangements of this Society be instructed to omit preparing, or having prepared by the local profession, any general *entertainment* at the annual meetings of the Society."

Would not that account for a small attendance in these modern days?

The proceedings contain an announcement that Dr. Davis addressed the Society and the public on "The Physiological Effects of Alcoholic Drinks on Man, and their Value as Preventives of Disease." A further naive memorandum states that: "In the evening a very respectable audience assembled and listened with *diminished* interest for an hour and a half to the address of Dr. Davis." Possibly the reporter did not approve of Dr. Davis' well known advanced ideas on the effect of alcohol!

In the president's address referred to by Dr. Larned the makeup man shifted the only two plates in the book—an art that has not been quite forgotten to this day. Additional articles printed in the volume are: "Walking, the Primary Element in the Cure of Deformities of the Lower Extremities," by E. S. Cooper, of Peoria, and "Stimulants and Tonics," a prize essay by H. Parker, of Chicago.

We wish to express the thanks of the Illinois State Medical Society to Dr. Larned for his courtesy in presenting this valued volume.

Detroit, Mich., Aug. 24, 1916.

Dr. C. J. Whalen,
25 E. Washington St.,
Chicago, Ill.

My Dear Doctor Whalen:

I am sending to you under another cover a copy of a volume entitled, "Transactions of the Illinois State Medical Society—for the Year 1854."

In looking over a lot of old papers that I had carefully put away I ran across this volume, and after reading it was so much struck with so many interesting statements therein that I thought this book should be sent to you, as in your capacity as president of the Chicago Medical Society, and a former president of the Illinois State Medical Society, I thought that you would be interested in reading an account of the meeting of the Illinois State Medical Society which took place sixty-two years ago, particularly in view of the fact that the president was Daniel Brainard, the founder of Rush Medical College, and I thought that you would be especially interested that the treasurer at the time was the famous N. S. Davis, of Chicago, one of the founders of the American Medical Association.

I think that everyone would be interested in the President's Annual Address, found on pages fifteen to thirty-eight, especially his remarks concerning the use of iodine solution in the treatment of infected wounds. Dr. Brainard's remarks are curious, considering that they were made in 1854, when it is borne in mind that the present method of treating infected wounds among the soldiers in the present war is by means of iodine solution. Very truly yours,

E. R. Larned.

Department of Experimental Medicine, Parke, Davis & Co.

Correspondence

Chicago, Aug. 17, 1916.

To the Editor: Kindly make the following announcement and oblige:

In the current prospectus of the Jenner Medical College my name appears as a member of the faculty. I wish to state that I am not, nor have I ever been, officially connected with the aforesaid school. My name, as a faculty member, was used without my knowledge or consent and without any negotiations with the institution bearing upon a faculty position. My relations with the Jenner Medical College simply consist in my having consented to give a few special lectures on surgical subjects during the coming term.

Very truly,

G. Frank Lydston.

RESULTS OF THE PHYSICIANS' EXAMINATION HELD BY THE ILLINOIS STATE BOARD OF HEALTH IN CHICAGO

May 4, 5 and 6, 1916

Physicians—Present, 168; passed, 154; failed, 12; incomplete, 2.

PASSED

College—	Year Grad.	Total No. Passed
Bennett	1914(1), 1915(6), 1916(24)*	31
Boston Univ. Sch. of Med.....	1903	1

Chgo. Coll. M. & S.	1914(1), 1915(4), 1916(21)	26
Chgo. Hosp. Coll. of Medicine	1916	1
Hahnemann, Chgo	1916	4
Howard, Washington, D. C.	1912	1
Jenner	1915	1
Meharry Med. Coll.	1911(1), 1914(1), 1915(1)	3
National Univ. of Arts & Sciences, St. Louis	1914	1
Northwestern	1915(4), 1916(13)	17
Rush	1911(1), 1916(22)	23
Univ. of Iowa (R)	1890	1
Univ. of Ill.	1910(1), 1911(1), 1914(1), 1916(41)	44
		154

FAILED

Bennett	1915	1
Chgo. Hosp. Coll. of Med.	1915	3
Coll. of Med. & Surg., Chgo.	1910	1
Detroit Coll. of Med.	1904	1
Meharry Med. Coll.	1912(1), 1913(1), 1914(1)	3
Rush	1901	1
Univ. of Louisville	1911	1
Univ. of Penn.	1906	1

*In this table, large numerals in parenthesis, as (24), indicate number of candidates.

UNITED STATES PUBLIC HEALTH SERVICE.

Congress has recently made an appropriation for thirty-three additional assistant surgeons in the United States Public Health Service. These officers are commissioned by the president and confirmed by the senate. The tenure of office is permanent, and successful candidates will immediately receive their commissions.

After four years' service assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Passed assistant surgeons after twelve years' service are entitled to examination for promotion to the grade of surgeon.

Assistant surgeons receive $2,000, passed assistant surgeons $2,400, surgeons $3,000, senior surgeons $3,500, and assistant surgeon-generals $4,000 a year. When quarters are not provided commutation at the rate of $30, $40 and $50 a month, according to grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years up to 40 per cent after twenty years' service.

Examinations will be held every month or so in various cities for the convenience of candidates taking the examination. Further information will be furnished by addressing the Surgeon-General, United States Public Health Service, Washington, D. C.

TUBERCULOSIS NOTES

OUT OF BED TREATMENT OF HEMOPTYSIS.

In many cases hemoptysis is arrested more promptly by allowing the patients to sit up quietly, propped up in a comfortable chair, than by keeping them in an absolutely recumbent position in bed. The erect posture diminishes the danger of aspiration. From the legion of medical remedies the author recommends calcium salts and intravenous injections of hypertonic saline solutions: for cough, codeine, not morphine, He reports a case in which a severe hemoptysis was promptly stopped on two occasions as soon as the patient got up from bed. No ill effects on the pulmonary condition.—*Zur Behandlung der Haemoptoe, Dr. W. Neumann, Zeitschrift fuer Tuberkulose, Dec., 1915, Bd. 25, H. I.*

THERAPEUTIC PNEUMOTHORAX.

Sixty cases were treated at the White Haven Sanatorium for three years. In over 500 injections there was not one case of local or general infection, of operative death or serious symptoms due to the injection. The puncture is made with a Billroth aspirating-needle in the 8th, 9th or 10th space in the post-axillary line. Nitrogen gas is used. The first injection consists of 200 or 300 c.cm. and is repeated every fifth day, gradually lengthening the intervals as sufficient compression is established. The amount is increased up to 1000 c.cm. and the compression is kept up for six months, in some cases longer. The indications were as follows: 1. Progressive softening in one lung, the other lung being normal or showing no signs of activity or loss of function. 2. Relief of hemorrhage, especially marked hemorrhage with threatening symptoms. 3. Pleurisy, either dry or with effusion. Of the 60 cases, 12 could not be treated on account of pleural adhesions and one refused treatment. Of the 47 cases treated, 5 showed no improvement and 42, or 90 per cent., were improved. Of the improved cases, 10, or 23 per cent., are apparently cured and have been working for periods of several months to two and one-half years without symptoms. Seventeen have left the institution while improving and 15 are still under treatment. In hemorrhage and pleurisy the results were very good.—*Therapeutic Pneumothorax A. Armstrong, Penn. Med. Jour., 1916.*

RELATION OF THE TEETH TO TB.

The examination of oral conditions in 297 cases of Tb. in a sanatorium showed: Bad condition of the mouth in 51 per cent.; bad condition of the teeth in 40 per cent.; bad condition of the gums in 51 per cent., and pyorrhea in 35 per cent. It is a question whether the tbc. disease and mixed infection in these patients arose through the condition of their teeth and gums or whether their tbc. condition affected the teeth and gums secondarily. It is assumed, at any rate, that a bad condition of the teeth and gums affords a good medium for the growth of the tubercle bacillus, which has often been found in teeth containing cavities. Sore teeth and tender gums may, moreover, be the cause of insufficient and ineffectual mastication. The author establishes a contrast between the general results obtained in the female and male patients in the sanatorium, the former being much more careful and obedient in the care of their teeth and gums than the latter. The male patients, placed under the same

treatment as the female, have not shown the same percentage of good results. The care and time spent by female patients in keeping their mouths clean has assisted materially in bringing about a marked improvement in their general condition. The tbc. patient with clean teeth and good gums has a better chance of quiescence or arrest of the disease than one in whom conditions in these respects are bad.—*Relation of teeth to tuberculosis, H. Freudenberger, Lancet-Clinic, March 11, 1916.*

Public Health

TYPHOID FEVER AT ELGIN.

The advantage of having a trained medical health officer on the job constantly for the purpose of preventing trouble as well as to meet sanitary and health emergencies has been demonstrated in Elgin, where there is now being experienced an extensive outbreak of typhoid fever among employes of the Elgin National Watch Company. Twenty cases were reported to the State Board of Health by the local health authorities on August 16, 17, 18 and 19. The explosive outbreak did not appear until August 16, but the danger signals which would have been significant to a medical health officer were in evidence as early as the first of July. Six cases of typhoid fever were reported in the last nine days of June, and four of these victims were employes of the watch factory.

Inasmuch as these reports were received by a lay health officer, it is not to be wondered at that the source of trouble was not suspected.

During the month of July there were eight times as many cases among employes of the watch factory as among other residents of Elgin, but this fact continued to be unobserved.

It was not until August 17th—when an epidemic was impending—that the assistance of the city physician, Dr. A. L. Mann, was sought by the health officer and within two or three days Dr. Mann determined the source of trouble to be in the drinking water supplied to the employes of the watch factory.

When a representative of the State Board of Health visited Elgin in response to the reports of the health officer the source of infection had been determined and the watch company was doing everything in its power to abate the prevalence of the disease, including free anti-typhoid vaccine for all its employes.

In entering upon his investigation, about the 17th of August, the health officer carried out bacteriologic water examinations proving that the drinking water furnished at the watch factory was entirely safe, but that the water supply for fire protection was highly polluted. When this was brought to the attention of the officers of the watch company a close search was made to find the intercommunication of the two water systems. It was ascertained that there were four or five points where the drinking water pipes and fire protection pipes came together, the two water supplies being separated by valves. A leaking valve was determined to be the source of trouble.

Upon learning these facts the two water services were permanently discontinued and all pipes thoroughly flushed.

The sequence of events leading to this epidemic may be summarized as follows:

1. A leaky valve admiting the highly polluted water of the Fox river into the drinking water mains.
2. While the river was relatively high the dilution of the sewage was such that, with a comparatively small leak, the water was only moderately contaminated.
3. This resulted in numerous cases of diarrhea and a few cases of typhoid fever among more susceptible individuals, whose sewage added further to the amount of typhoid infection in the river above the water intake at the factory.
4. A low water stage of the river concentrated the infection and increased the amount of infection from earlier cases.

The attitude of the watch company has been characteristic of the increasing sense of responsibility common to manufacturing and industrial organizations of the higher type. The control of secondary cases has been much simplified by the offer made by the company to pay the hospital, nursing and doctor bills of all sick employes, insuring adequate protection against contact infections.

A control of the collective merits of sensitized and ordinary typhoid vaccines, in preventing typhoid in persons who have already received their infection, is being carried out at Elgin and the results will be watched with interest by the State Board of Health.

Whether or not a trained medical health officer would, in this case, have seen this impending epidemic when its first evidence appeared in June and July, it is impossible to say, but it is certain that a clear interpretation of the threatened calamity would have prevented the later epidemic, and this interpretation can only be fairly expected from the health officer of medical training.

NEW CIRCULAR ON TUBERCULOSIS.

At the suggestion of a prominent Illinois druggist who holds that a large number of persons lose their opportunity of recovery from tuberculosis, while wasting time on cough remedies, tonics, consumption cures and other patent medicines, the State Board of Health is issuing a one-sheet circular giving the essential facts about the early diagnosis of tuberculosis in the briefest possible form. This little circular bears the caption, "Don't Wait Until You Are Sick—Delays Have Dangerous Ends," and warns against self treatment of colds, coughs, impaired appetite, indigestion, nervousness and other symptoms which are so frequently forerunners of tuberculosis. The circular also contains illustrations of the correct and incorrect way of examining a patient and the reader is reminded that a careless examination is worse than no examination at all, but that he should submit cheerfully to being stripped for examination, to the taking of a prolonged case history and to all such tests as the physician may desire to make.

The druggist who suggested this circular advises

the State Board of Health that he would cheerfully present a copy of such a folder to all persons desiring to purchase cough cures, catarrah cures or other patent medicines and that it was his conviction that the better class of druggists throughout the state would gladly do likewise.

This new folder will be supplied without cost to all druggists and others who desire to take effective part in the warfare against tuberculosis.

NEW CARDS FOR EPIDEMIC INVESTIGATIONS.

The State Board of Health has recently prepared cards for use in investigations of outbreaks of typhoid fever, small-pox, diphtheria and scarlet fever. While these cards are intended primarily for the use of the state epidemiologist and the district health officers, they will be supplied, upon request, to any health officer who desires to use them. While these cards will be of great convenience in the investigation of outbreaks of the diseases as mentioned, they are almost indispensable in tracing sources of infection of sporadic cases.

The modern conception of communicable diseases is that they are truly "communicated" from one person to another. The up-to-date health officer is not satisfied to attribute sporadic cases of scarlet fever to the fact that "A tin horn which father blew while he had scarlet fever thirty years ago had been brought down from the attic a month before last." The statement that "the child got diphtheria from the offensive privy vault across the alley" takes his credence beyond its limits. He does not believe that small-pox comes from manure piles nor typhoid fever from pig pens, although admitting the secondary role these two may play in producing flies.

The real question with the health officer is "where is the case of scarlet fever or small-pox from which this patient acquired the disease? Is it a case I already have in quarantine, a case I released too early or is there an unrecognized or unreported, and therefore unrestricted case or carrier at large in the community?"

These are the questions he must answer and in proportion as he is able to answer them correctly he is able to apply the proper methods for control. The prompt investigation of the sources of contagion is the essential of communicable disease control.

The cards just issued by the State Board of Health, when properly filled out, provide information as to the location of the individual, source of milk supply, school attended and so on and, for each disease, the particular information which the sources and modes of infection of that disease demand.

Death, so-called, is a thing that makes men weep, and yet a third of life is passed in sleep.

The excesses of our youth are draughts on our old age with interest about thirty years after date.

Nothing so much prevents our being natural as the desire of appearing so.

God gives every bird its food, but does not throw it into the nest.

Few persons have sufficient wisdom to prefer censure, which is useful to them, to praise, which deceives them.

Self-love is not so vile a sin as self-neglect.

A man who cannot mind his own business is not to be trusted with the king's.

The most manifest sign of wisdom is continued cheerfulness.

The drying up a single tear has more honest fame than shedding seas of gore.

No man is at all times wise.

People seldom improve when they have no other model but themselves to copy after.

They do not love who do not show their love.

To cure is the voice of the past. To prevent, the divine whisper of today.

I hardly know so true a mark of a little mind as the servile imitation of others.

Happiness is a perfume you cannot pour on others without getting a few drops on yourself.

Keep your fears to yourself, but share your courage with others.

A man should never be ashamed to own that he has been in the wrong, which is but saying in other words that he is wiser today than he was yesterday.

Youth is the best time for improvement.

A man is worth only as much as he is worth to his fellow men.

No man deserves to be praised for his goodness unless he has strength of character to be wicked.

Life is not so short but there is always time for courtesy.

It costs more to maintain one vice than ten virtues.

The darker the day the clearer the call for you to shine.

Auto Sparks and Kicks

IF YOUR PUMP DOESN'T MEASURE CORRECTLY

UNITED STATES BUREAU OF STANDARDS SAYS MOST OF THEM DON'T AND TELLS WHY.

Gasoline pumps in service show a tendency toward undermeasurement, according to F. J. Schlink, assistant pysicist of the United States Bureau of Standards.

Results of the tests in the field indicate that pumps in service show a decided tendency toward undermeasurement, this being due to the fact that nearly all of the defects of construction or installation tend to produce errors in this one direction. These include leaks of air and liquid, retention of liquid by the hose, vapor formation consequent upon excessive suction head, failure to complete the full stroke, and slippage of liquid past valves and piston.

WHY PUMPS UNDERMEASURE.

The principal causes of short delivery of pumps of the piston type are leaking of foot valves, and formation of vapor or air space under the piston, resulting from excessive virtual suction lift or leaky piping, or piping containing traps tending toward the periodical retention of vapor. It appears that a total vertical suction lift greater than seven feet may be excessive with the ordinary commercial (not "blended" or casing-head") gasolines. "Casing-head" or "blended" gasoline should not be lifted any appreciable vertical distance on the suction side in those types of pumps in which the piston and cylinder form the measuring element, on account of the vaporization difficulty already mentioned. Special installations, in which the pump is located at or near the level of the supply tank, should be employed for the last mentioned grades of gasoline.

Another source of error which should be guarded against in design and installation of piston measuring pumps is the inertia of the moving liquid column.

THE CARE CHAINS SHOULD HAVE.

To the ever energetic Jackson people is due the following excellent and timely advice: "The user of chains should take care to see that they are properly applied. They should be loose enough to creep or work around the circumference of the tire. Otherwise chains will soon ruin the tires. Chains really should not be used on lumpy non-skid tires for the reason that the projections do not permit them to creep and they put the tire beyond the useful point in a short time. If chains are used for a day or so and then removed for a time, they should be allowed to dry before being put into a bag. If mud or ice clings to them, remove it by heating the chains on the floor of the garage. Handled this way the metal has little chance to rust badly. At least one set of chains should always be carried with the car, because they may be needed badly when you are miles from home."—*Motor Print.*

AVOID LONG HOSES.

The use of long filling hoses and of hoses so arranged that they cannot be readily drained results in cases of short delivery to individual purchasers; this should be obviated by so relating the length of hose and the height of hose connections that the hose can always be readily drained to a definite level. A measuring pump should not be installed inside a building with the hose connection outside, unless so arranged that the manner of operation of the pump is clearly visible to the purchaser. The writer also questions the advisability of permitting the use of a shut-off cock on the outer or delivery end of the hose, as its use may readily operate to prevent the regular drainage of the hose into the customer's tanks.

THE "FUEL-LESS" AUTO!

"What do we care how high the price of gasoline goes," said the wit. "See this ad? 'Efficiency Carburetor,' saves 50 per cent of the gasoline, and over here, 'Save-It Mixer,' saves 50 per cent. Just get one of each and you won't have to buy any gasoline."

TIME TO DISCARD AN OLD TIRE.

An automobile tire should wear out and not blow out. When an otherwise good casing must be discarded because of blowouts it means that the fabric is not as durable as it should be. The fact that inner liners increase the usefulness of a tire means that the fabric foundation is not as strong as it should be.

THE UNITED STATES PUBLIC HEALTH SERVICE ASKS DO YOU

Believe in national preparedness and then
Fail to keep yourself physically fit?

Wash your face carefully and then
Use a common roller towel?

Go to the drug store to buy a tooth brush and then
Handle the entire stock to see if the bristles are right?

Swat the fly and then
Maintain a pile of garbage in the back yard?

DO YOU KNOW THAT

Bettter wages make better health?

Better health makes better citizens?

Better citizens make a better nation?

The U. S. Public Health Service found 78 per cent of the rural homes in a certain county unprovided with sanitary conveniences of any kind?

Cholera is spread in the same manner as typhoid fever?

Scarlet fever kills over 10,000 Americans each year?

Hookworm enters through the skin?

He who builds up health lays up treasure in the Bank of Nature?

Think all you speak, but speak not all you think. Thoughts are your own, your words no more.

The first ingredient in conversation is truth, the next good sense, the third good humor, and the fourth wit.

Society Proceedings

FULTON COUNTY.

The seventy-sixth meeting of the Fulton County Medical Society was held in the auditorium of the Y. M. C. A. building in Canton, July 27, and was called to order by Vice-President Simmons at 2:00 o'clock.

Drs. C. G. Turner and C. N. McCumber were elected members.

Dr. Adams, as chairman of the committee to confer with the supervisors, reported that nothing had been accomplished. The committee had found two or three localities in the county where the physicians were charging the same as the present county fee bill, which placed the committee in the position of asking from the county a higher fee than was being asked by physicians in their general practice. On the request of the committee the president named Dr. C. E. Howard on the committee as an additional member.

Dr. H. H. Whitten of Batavia presented "Some Obstetrical Problems," Dr. W. L. Crouch "A Case of Trichinosis," and Dr. C. G. Turner "The Relation of Diseased Tonsils to Other Systemic Diseases."

These interesting papers were freely discussed.

Thirteen members were present.

Drs. Snively and Adams moved a vote of thanks to Drs. Whitten, Turner and Crouch for their valuable papers. Carried.

Drs. Adams and Scholes moved adjournment to an ice cream parlor at the secretary's expense. Carried.

D. S. Ray, Secretary.

JO DAVIESS COUNTY.

The Jo Daviess County Medical Society met at the DeSota House, Galena, July 17, at 1 p. m., proceeded by auto to the ferry landing and from thence to Camp 19 by ferry. Meeting called to order by the president, A. T. Nadig, at 2 o'clock. Nine members and six visitors present.

After dinner the application for membership of J. Rodge of Apple River was read and referred to the censors.

A committee to draw up the following resolutions for Dr. A. F. Bucknam of Warren, whose death occurred May 4, was appointed:

Necrology of Dr. A. F. Bucknam of Warren, Ill., and Resolutions of Respect.

Whereas, It has pleased the Almighty Father in His Supreme Wisdom to remove from our midst by death, our brother, Dr. A. F. Bucknam, a wise and good physician, a faithful and efficient member of our society, therefore be it

Resolved, That in the death of Dr. A. F. Bucknam this society has sustained an irreparable loss, that the members will mourn the loss of a brother who was ever ready to proffer the hand of aid and the voice of sympathy to the needy and distressed, a friend and companion who was dear to us all, a citizen whose upright and noble life was a standard for emulation by his fellows, and be it

Resolved, That the sympathy of this society goes out to the children deprived of the love of a most exemplary father, and be it further

Resolved, That a copy of these resolutions be spread upon the records of this society, and one transmitted to the bereaved children of our deceased brother.

Dr. A. T. Nadig,
T. J. Stafford,
D. G. Smith.

Dr. D. F. Downing read a most interesting paper on "Carcinoma Toxin (Newell): Its Use in Post-Operative Cases of Carcinoma," which was ably discussed by Drs. D. G. Smith, Schrup, Leitzel, Snyder and Bench.

Dr. T. J. Holke then gave a very appropriate paper on "High Blood Pressure," which was discussed by Drs. Leitzel, Schrup, Logan and Snyder.

Dr. J. H. Schrup's paper on the "Inter-Relation of Pelvic and Abdominal Pathology" was exceedingly instructive and was discussed by Leitzel and Downing.

Dr. K. F. Snyder concluded by reading a most modern and interesting paper on "The Cure of Tuberculosis of the Spine by Means of Bone-Grafting." Paper was discussed by Leitzel, Schrup and Holke.

After the discussions the society adjourned, all agreeing that the meeting had been a huge success.

Lunch was served at 5:30.

A. T. NADIG, President. T. J. STAFFORD, Secretary.

MACOUPIN COUNTY.

The Macoupin County Medical Society met in the M. E. Church at Scottville, July 25, and was called to order by President M. McMahon of Palmyra.

The minutes of the last regular meeting were read and approved. The treasurer's report was read and on motion was approved.

At this meeting it was finally decided to change the time of the meetings from quarterly to bi-monthly meetings.

Dr. F. A. Renner of Benld, who had been elected president at the last meeting, was inaugurated president, Dr. G. E. Hill of Girard, vice-president, and Dr. T. D. Doan of Scottville, secretary-treasurer.

Dr. F. Renner, in his inaugural address, gave the following:

Gentlemen: In accepting and assuming this office I desire to express to you my thanks for the honor conferred, and to assure you my best efforts will be given to build up and maintain the usefulness of the Macoupin County Medical Society.

In these, my few remarks, I desire to emphasize the value which we as members of the profession could obtain were we more firmly united in our struggle against disease and suffering and could we eliminate the commercialism which too often controls our actions.

Let us endeavor to treat each other as colleagues and not as opponents; I can think of no more discouraging event than to make your regular call on a patient, probably one in whose recovery you are greatly interested, have spent hours of study and worry, to find in your absence a "colleague" has been called in, has examined the patient and left medicine or prescription and stated he would call again, at that time knowing you had not been discharged from the case.

I have in mind some of my neighboring physicians who, if called into a case of mine, in my absence, either refuse to prescribe or if they do, leave a note with instructions that it be given to the attending physician on his next call. Others insist on the attending physician being called, the case is talked over and the last called physician collects a fee as consultant and all are satisfied.

Let us in future bind ourselves closer together, working for the upbuilding of our profession, not endeavoring to undermine the other fellow, but if he is wrong, using every effort to put him right with the patient, the family and himself.

Quoting an article from one of our journals, "The best rule of ethics is that of simple right and wrong—the Golden Rule." He who carries this in his heart and invariably acts upon it has little need of written codes. Such a one is not a wolf whose actions must be regulated by law, whose preying upon his fellows must be restrained within such limits as protect the pack in general, but he is a God-fearing, Christian gentleman, or its full equivalent, who does what he feels to be right, not for fear of punishment or of detection, but because he has trained himself to do so as a matter of course, to keep his self-respect.

He desires to say truthfully, when he comes to face Eternity, that he has never knowingly wronged any human being nor neglected an opportunity of benefiting others; and, if he can do this, whatever his creed, he may fearlessly step off into Infinity, to meet a just God.

In closing I desire to urge each member of our society to be willing to do his part in whatever way may prove beneficial to himself and to our society.

I desire to congratulate my predecessor, Dr. McMahon, for the growth in interest and benefits of our society. His has been a successful administration, but we must not stand still nor fall back; therefore, let us strive to build up our society, knowing that we grow with it. Your officers realize how little they can accomplish without co-operation on the part of the members.

Therefore, I urge the members to strive for better attendance, in every way to make our work a success. Again I thank you.

The Ladies' Aid Society of the Methodist church gave an elaborate country dinner to thirty-four physicians and their guests, which was highly complimented by all who were so fortunate as to be present at the repast.

A rising vote of thanks was given to the ladies for their success in preparing such a feast of fried chicken, pies, cake, ice cream and other good things which completed the feast.

Dr. F. P. Norbury of Springfield gave an address on "Early Recognition of Mental Disorders."

Dr. G. H. Stacy gave a brief resume of a paper previously published in the *Journal A. M. A.*

On motion the society thanked both physicians for their interesting addresses. This meeting was one of the most successful in the history of the society, over forty being present at the meeting.

T. D. DOAN, Secretary.

MADISON COUNTY.

The July Meeting.

This meeting was held at the Alton State Hospital, July 7, and was the best attended meeting in the history of the society. The hospital site is a charming place to hold a meeting and the management, profuse in its hospitality, knew how to make every one feel at home.

Dr. John C. Helper of Wood River was elected to membership. Bills for the care of patients at the Harrison Tuberculosis Colony to the amount of $97.50 were paid out of the fund created by the sale of Red Cross Seals.

Fred J. Kern, president of the State Board of Administration, gave an address on "The Scope and Purpose of the State Institutions," which was full of practical information, and the large audience gave undivided attention to the words of the speaker.

Dr. Frank P. Norbury of Jacksonville read a paper on "Individuation in the Treatment of Nervous and Mental Disorders." It was one of the most scholarly and scientific papers ever presented to this society, clearly demonstrating that in the treatment of mental affections the patient must be regarded as an individual and not one of a class. By vote the paper was ordered sent to the ILLINOIS MEDICAL JOURNAL for publication.

Short addresses were also made by Mayor Edmond Beall of Alton, and Judge B. R. Burroughs of Edwardsville. The latter was a member of the board when the hospital site was purchased.

Mr. Kern, in his address, told his hearers that the act creating the Alton hospital limited the admissions to 1,500, and he advocated an amendment by which this provision would be eliminated. He said that by reason of its situation in a most populous portion of the state this hospital had very good prospects of becoming the largest hospital in the state, and for this reason the limitation in regard to admissions ought to be removed. On motion of Dr. Haliburton each member was requested to write to the legislators from this district, soliciting their aid in securing this amendment.

A substantial and elegant lunch was served, for which a vote of thanks was given to the Board of Administration. Also a vote of thanks was tendered to the distinguished speakers for their presence and for their efforts in securing us an interesting and instructive program.

Thirty-two members and twenty-five visitors were present.

The August Meeting.

The average doctor is only human after all and the boys of the profession in Madison county like a little diversion from the everyday grind as well as the boys of younger years. Dr. M. W. Harrison arranged a musical program for our August meeting held at the Harrison Tuberculosis Colony at Collinsville. A high grade concert was given by the ladies of the Orpheus Club, composed of society matrons and young ladies of Collinsville. Nine numbers were given and it would be very difficult to tell which was the best or the most appreciated. All sang and played like professionals and many a doctor's heart beat just a little faster as some familiar strain vibrated in unison with a memory chord in the deepest recesses of his soul, reminding him probably of a time long ago when his whole time was not engrossed with pills and powders. The program was highly appreciated and the doctors were duly grateful.

In the absence of the president and vice-president Dr. W. H. C. Smith of Godfrey was called to the chair.

Seventeen members and twenty-eight visitors were present.

Dr. Harrison expressed his appreciation to the ladies of the Orpheus Club for their entertaining effort and a vote of thanks was also tendered them by the society. Elegant refreshments were served by Dr. and Mrs. Harrison and a vote of thanks was tendered them for their efforts in making this an entertaining and enjoyable occasion.

Adjourned to meet in Highland on the first day of September, 1916.

OGLE COUNTY.

The Ogle County Medical Society met in Stillman Valley, July 16, at 1:30 p. m. Meeting was called to order by President Griffin. Minutes of the last meeting were read by the secretary and approved. Seventeen members and visiting guests: Dr. E. S. Murphy, Dixon; H. M. Starkey, Rockford; Emil Windmueller, Woodstock, and Representative Attwood of Stillman Valley were present.

It being the regular meeting for the election of officers the following officers were duly elected: President, A. H. Beebe of Stillman Valley; vice-president, J. A. Johnson of Byron; secretary-treasurer, J. T. Kretsinger, Leaf River; delegate, J. M. Beveridge of Cregan; alternate, J. C. Akins of Forreston; censor, W. E. Kittler of Rochelle.

Program: Dr. H. M. Starkey of Rockford read an excellent paper, "The Influence of General Infection on Diseases of the Eye." This paper was ably discussed by Drs. Windmueller, Beveridge and Beebe, Dr. Starkey to close.

Dr. Louis Thexton of the Park Avenue Hospital, Chicago, was expected to address the society. He started from Chicago by automobile that morning, but rain and worlds of trouble prevented his getting further than Sycamore, much to the disappointment of both Dr. Thexton and the society.

Dr. Emil Windmueller of Woodstock gave a short talk in explanation of the new organization, "The Confederation of Medical Societies of Northern Illinois and Southern Wisconsin," and advised all members of local societies to become members of the new association. A good program was promised for a two days' meeting to be held at Freeport the latter part of September.

Dr. H. H. Davis of Monroe Center and Dr. A. W. Chandler of Rochelle were voted into the society as members.

No further business to come before the society the meeting adjourned to meet at Rochelle the third Wednesday in October, 1916.

DR. J. T. KRETSINGER, Secretary.

Personals

Dr. W. E. J. Michalet, Chicago, has removed his office to 31 North State Street.

Dr. J. Howard Beard, Urbana, has been appointed health officer of the University of Illinois.

Dr. Daniel F. Hayes, who has been at work for a year in Etaples, France, with the Murphy unit, has returned.

Dr. Norman MacL. Harris of the University of Chicago has been made captain in the Canadian Army Medical Corps.

It is reported that the estate of Dr. John B. Murphy totaled $1,250,000, of which all but $250,000 is in realty.

Dr. Nathan S. Davis, III, has been commissioned first lieutenant Medical Corps, and assigned to Battery C, First Illinois Artillery.

Dr. Karl F. Snyder, of Freeport, has discontinued general practice and is devoting himself to general surgery, consultation and office practice.

Dr. Adolph Hartung and Dr. Maximilian J. Hubney, Chicago, desire to announce the dissolution of their partnership, effective September 1, 1916.

Capt. George L. Lipshulch was appointed camp surgeon at Camp Dunne, Springfield, August 7, succeeding Lieut.-Col. Jacob Frank, mustered out of the federal service.

Dr. W. E. Buehler of Chicago is said to resemble Charles Evans Hughes so strongly that when he appeared near the Hughes special car he received an ovation.

Dr. Harry W. Ackermann, Rockford, Captain, M. C., Ill. N. G., assigned Third Illinois Infantry, has been obliged to return from the southern frontier on account of illness.

One of the physicians accused by the *Chicago Examiner* of swindling a foreigner when examining a child for infantile paralysis, has brought suit against the paper. As stated in the August JOURNAL, both physicians were exonerated.

Richard T. Crane, in a telegram to Mayor Mitchell of New York, announces a gift of $25,000 to the individual who may offer the best cure for infantile paralysis, or the best solution to that problem, within a year.

News Notes

—Dr. Karl Meyer, warden of Cook County Hospital, finds that practically all the patients with heat prostration there were alcoholic.

—Dr. Arthur L. Blunt, arrested for the eleventh time for selling habit forming drugs illegally, August 23, is reported to have gone on a "hunger strike" till meal time.

—The State of Illinois, on August 5, became officially free from foot and mouth disease and on that day the last quarantined farm in Christian County was released from restrictions.

—On July 21, the secretary of agriculture ordered release from tuberculosis cattle quarantine for Lake, McHenry, Kane, Dupage and Cook counties, effective August 1. The quarantine has been in force since October, 1914.

—Dr. C. A. Peterson, of Moline, who with his wife made a trip to Washington, D. C., in a Ford car equipped with a Moline auto bed in four days, was "shot" by the Pathe operator in Washington and will appear in the movies.

—The Augustana Hospital has purchased property at Garfield Avenue and Sedgwick Street, 379 by 267 feet. It is proposed to erect a hospital building to cost from $200,000 to $300,000 on the site.

—The Chicago Municipal Tuberculosis Sanitarium, through a staff of forty-two physicians, will conduct an extensive study of the tuberculosis problem throughout eight square miles, including the congested areas where tuberculosis is more prevalent.

—On August 22 the typhoid cases in Elgin totaled thirty-one. Dr. A. L. Mann, city physician, reported that the source of the contagion had been discovered in the water used by employees in a large local manufacturing plant. Dr. E. S. Godfrey is making an examination for the state board of health.

—New rules governing the examination for "practitioners other than licensed physicians" go into effect September 1. The new rules for these "other practitioners" require a high school training and four full years of technical work for full credit on the point of education preparation. There are at present about 1,800 "other practitioners" licensed in Illinois.

—A reporter interviewed ten prominent Chicago men on the question of how much vacation was advisable for business and professional men. The ideas were almost as numerous as the interviewed. One physician ventured the opinion that "two weeks to a month" should suffice. Others preferred a few days at a time. The majority advocated longer vacations as age increases.

—The State Board of Health has issued a pamphlet, brief and clearly expressed, giving information and advice regarding acute anterior poliomyelitis, together with an abstract of the rules and regulations of the board regarding the disease. Copies of this pamphlet may be obtained on application to Dr. C. St. Clair Drake, executive officer of the State Board of Health, Springfield.

—A meeting was held, August 21, to form a base hospital unit, comprising the Augustana, St. Joseph's and St. Mary's hospitals. Thirty men from the staffs of the three hospitals attended the meeting. The complete staff will include forty-six physicians, fifty nurses and fifty Red Cross assistants. The institutions were represented by Drs. A. J. Ochsner, E. H. Ochsner, Austin A. Hayden, Charles McKenna, P. J. H. Farrell and S. R. Pietrowicz.

—At a conference between Judge Scully, the county commissioner, and the members of the State Board of Administration, July 27, it was voted to place under the charge of Dr. Harold D. Singer and assistants the Psychopathic Hospital, at the disposal of the state for experimental work. The establishment of a farm colony for morons and feebleminded, and for the arrest and cure of all drug addicts, were also recommended by the conference.

—Dr. George W. Crile, Professor of Surgery in Western Reserve University, on August 25 gave an illustrated lecture before the Graduate School in Medical Sciences of the University of Illinois, Chicago. His subject was "Exhaustion and Restoration." On August 31 Professor C. R. Bardeen, Dean of the Medical School of the University of Wisconsin, gave a lecture before the same school, his subject being "Study of the Anatomy of the Heart in the Living by Use of the X-ray."

—The commissioner of health of Chicago and Dr. A. Augustus O'Neill have appointed a committee to undertake research on infantile paralysis. The members are: Dr. M. Herzog, chairman, and Drs. K. Meyer, H. B. Thomas, A. Hoyne and A. K. Armstrong. Other physicians have been appointed as an advisory committee. At a preliminary meeting, it is stated, the committee outlined a plan of investigation, and agreed that the work should not proceed until sufficient funds are forthcoming.

—A Confederation of County Medical Societies of Northern Illinois, Southern Wisconsin and Eastern Iowa will hold its first annual meeting at Freeport, September 26-27. An elaborate program has been prepared by the committee in charge, Drs. W. B. Peck of Freeport, A. J. Markley of Belvidere, A. C. Helm of Beloit and W. E. Park of Rockford, President W. L. Noble and President-elect Coolley of the Illinois State Medical Society, Drs. Sippy, Evans, Dudley and Bevan of Chicago and Dr. Judd of Rochester, Minn., will appear among others on the program.

—The Morgan-Cass County Medical Society held its annual picnic at the farm of Dr. Carl E. Black, in Cass County, August 17. The special guests of the occasion were Dr. and Mrs. William J. Mayo, Rochester, Minn. Dr. Mayo made an address on "Surgical Treatment of Stone in the Kidney." Dr. William F. Braasch, Rochester, Minn., spoke on "Clinical Observations of Stone in the Kidney." The members of the Central Illinois Clinical Surgical Association were also guests of the society and took part in the proceedings.

Marriages

Edward John Miller, M. D., to Miss May Janice Shannon, both of Chicago, July 26.

Frank Gillingham Morrill, M. D., to Miss Mabel Nortrup, both of Havana, July 29.

Philip Harman Broudo, M. D., to Miss Estelle Pruzan, both of Chicago, August 16.

Bertram Arthur Richardson, M. D., to Miss Ethel Wyllie, both of Emington, Ill., July 5.

Samuel Wheeles McKelvey, M. D., Kankakee, Ill., to Miss Anna McCumisky of Anna, Ill., at East St. Louis, July 19.

Obituary

John Benjamin Murphy, M. D., Chicago, Rush Medical College, 1879; aged 58, died at Mackinac Island, Michigan, August 11, from aortitis.

Dr. Murphy was lecturer on surgery at Rush Medical College 1884 to 1887, professor of Clinical Surgery, College of Physicians and Surgeons, 1892 to 1901; professor of Surgery, Northwestern University Medical School, 1901 till his death,

with the exception of 1905 to 1908, during which time he was professor of Surgery in Rush Medical College. He was also for many years professor of Surgery in the Post Graduate Medical School, Chicago; chief of the surgical staff of Mercy Hospital, 1895 till his death; member of attending or consulting staff of Alexian Brothers' Hospital, St. Joseph's and Columbus Memorial Hospital and the Hospital for Crippled Children; for several years attending surgeon for Cook County Hospital. He was a fellow of the American Medical Association, orator in Surgery in 1898 and president of the Association in 1910.

Deaths

PETER JOSEPH ROWAN, M. D., Chicago; University of Toronto, Ont., 1870; aged 69; a Fellow of the American Medical Association; died at his home, July 29, from pneumonia.

GEORGE W. GOODNER, M. D., Chicago; Northwestern University Medical School, 1869; aged about 75; died at his home in Chicago, in May, from the result of accidental burns.

JAMES H. ROSE, M. D., Harrisburg, Ill.; Medical College of Evansville, Ind., 1878; aged 68; a member of the Illinois State Medical Society; died at his home, August 14, from heart disease.

OMER C. SNYDER, M. D., Chicago; Chicago Homeopathic Medical College, 1884; aged 60; while on a fishing trip in northern Wisconsin, died near State Line, Wis., August 6, from cerebral hemorrhage.

EDWARD F. BUECKING, M. D., Chicago; Bennett Medical College, Chicago, 1876; Louisville (Ky.) Medical College, 1877; aged 59; formerly a Fellow of the American Medical Association; died in his apartment in Chicago, July 29, from heart disease.

E. C. TROUTT, M. D., Birds, Ill.; St. Louis College of Physicians and Surgeons, 1907; aged 32; a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home, August 11, from rapid progressive muscular atrophy.

FRANK HAMMETT HOLT, M. D., Chicago; Harvard Medical School, 1899; aged 47; a Fellow of the American Medical Association; superintendent of the Michael Reese Hospital, Chicago; formerly assistant superintendent of the Boston City Hospital; died in Michael Reese Hospital, August 3, from nephritis.

ALBERT T. MOBLEY, M. D., New Columbia, Ill.; Kentucky School of Medicine, Louisville, 1880; aged 70; formerly a Fellow of the American Medical Association; also a druggist; who served in both the army and navy during the Civil War; died in a hospital in St. Louis, July 29, after a surgical operation for the relief of disease of the kidney.

MELVILLE GEORGE MCHUGH, M. D., Chicago; Creighton Medical College, Omaha, 1900; aged 38; formerly a member of the Illinois State Medical Society; a specialist on tuberculosis and connected at one time with the Tuberculosis Hospital at Dunning; died in the Swedish Covenant Hospital, Chicago, July 24, from peritonitis following a surgical operation.

WILLIAM ABBOTT PHILLIPS, M. D., Evanston, Ill.; Harvard Medical School, 1887; aged 55; a member of the Illinois State Medical Society; at one time lecturer on comparative anatomy in Northwestern University Medical School, Chicago; curator of the ethnologic museum of Northwestern University; a member of the American Association for the Advancement of Science; an archeologist of repute; chief of the medical staff of the Evanston Hospital; died at his home in Evanston, July 24.

SPENCER JOSEPH WAY, M. D., Kankakee; Rush Medical College, 1872; aged 65; a Fellow of the American Medical Association; member of the Illinois State Medical Society and the Kankakee County Medical Society; died at his home in Kankakee after an illness of two years, July 30. Nearly the whole of Dr. Way's life was spent in Kankakee. His kindnes, generosity and philanthropy made him a host of friends, who mourn his departure. Strictly ethical with his professional brethren, keenly interested in his work, and, from every viewpoint, a true and trusty physician.

NEW AND NON-OFFICIAL REMEDIES.

During August the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

The Abbott Laboratories: Arbutin-Abbott.

National Pathological Laboratory: Mercurial Oil—National Pathological Laboratory.

E. R. Squibb and Sons: Mercury Red Iodide, 1 per cent., in Oil, Squibb, Barium Sulphate—Squibb for x-ray work. Liquid Petrolatum—Squibb.

Fibrin Ferments and Thromboplastic Substances (Kephalin).—The clotting of blood has been shown to be due to the action of the fibrin ferment on the fibrinogen of the blood. The fibrin ferment (thrombin) exists in the blood in the form of prothrombin which is converted into thrombin by the action of calcium and thromboplastic substance (thromboplastin). Kephalin, prepared from the brain, has the properties of thromboplastin. Preparations containing thromboplastin are said to be useful, when applied locally, in the treatment of hemorrhages, especially hemorrhages from oozing surfaces, scar tissue and nosebleeds. The intravenous use of thromboplastin in certain conditions has also been proposed.

Brain Lipoid.—Impure Kephalin.—This is an ether extract of the brain of the ox, or other mammal, prepared according to the method of Howell and Hirschfelder. It has the properties of thromboplastic substance described above. It may be applied direct to the tissues or on sponges or pledgets, or

it may be used in the form of an emulsion with sodium chlorid solution.

Solution Brain Extract.—Solution Thromboplastin—Hess.—An extract of ox brain in physiologic salt solution prepared by the method of Hess. It has the properties of thromboplastic substances described above. The solution may be applied directly to, or sprayed on the tissues or by means of a sponge or tampon.

Galactenzyme Tablets.—Tablets containing a practically pure culture of Bacillus bulgaricus. For administration in intestinal fermentative diseases. Put up in bottles containing 100 tablets each and bearing an expiration date. The Abbott Laboratories, Chicago.

Galactenzyme Bouillon.—A pure culture in vials of Bacillus bulgaricus each vial containing about 6 Cc. Used internally for intestinal fermentative disorders and topically in nasal, aural, throat, urethral and other affections when the use of such a culture is indicated. Put up in packages of 12 vials each. The Abbott Laboratories, Chicago.

Ampules Mercuric Salicylate—Squibb, 0.065.—Each ampule contains 0.065 Gm. mercuric salicylate, N. N. R., in 1 Cc. of sterile suspension. E. R. Squibb & Sons, New York.

Ampoules Quinine Dihydrochloride—Squibb, 1 Gm.—Each ampule contains 1 Gm. quinine dihydrochloride, N. N. R., in 2 Cc. of sterile solution. E. R. Squibb & Sons, New York.

Ampoules Quinine Dihydrochloride—Squibb, 0.5 Gm.—Each ampule contains 0.5 Gm. quinine dihydrochloride, N. N. R., in 2 Cc. of sterile solution. E. R. Squibb & Sons, New York.

Ampoules Quinine Dihydrochloride—SEquibb, 0.25 Gm.—Each ampule contains 0.25 Gm. quinine dihydrochloride, N. N. R., in 2 Cc. of sterile solution. E. R. Squibb & Sons, New York.

Ampoules Quinine and Urea Hydrochloride—Squibb, 1Gm.—Each ampule contains 1 Gm. quinine and urea hydrochloride, N. N. R., in 2 Cc. of sterile solution. E. R. Squibb & Sons, New York.

Ampoules Quinine and Urea Hydrochloride—Squibb, 0.5 Gm.—Each ampule contains 0.5 Gm. quinine and urea hydrochloride, N. N. R., in 2 Cc. of sterile solution. E. R. Squibb & Sons, New York.

Ampules Quinine and Urea Hydrochloride—Squibb, 0.25 Gm.—Each ampule contains 0.25 Gm. quinine and urea hydrochloride, N. N. R., in 2 Cc. of sterile solution. E. R. Squibb & Sons, New York.

Ampoules Quinine and Urea Hydrochloride—Squibb, 1 per cent.—Each ampule contains 5 Cc. of a sterile 1 per cent. solution of quinine and urea hydrochloride, N. N. R. E. R. Squibb & Sons, New York.

Ampoules Sodium Cacodylate—Squibb, 0.13 Gm.—Each ampule contains 0.13 Gm. sodium cacodylate, N. N. R. E. R. Squibb & Sons, New York.

Ampules Sodium Cacodylate—Squibb, 0.05 Gm.—Each ampule contains 0.05 Gm. sodium cacodylate, N. N. R. E. R. Squibb & Sons, New York. (Jour. A. M. A., Aug. 5, 1916, p. 437.)

Arbutin-Abbott.—A non-proprietary brand complying with the standards for Arbutin N. N. R. The Abbott Laboratories, Chicago. (Jour. A. M. A., Aug. 19, 1916, p. 586.)

Ampules Mercury Iodide (red) 1 per cent. in Oil—Squibb.—Each ampule contains 1 Cc. of a solution of red mercuric iodide and anesthesin, each 0.01 Gm., in a neutral fatty oil. E. R. Squibb & Sons, New York. (Jour. A. M. A., Aug. 19, 1916, p. 586.)

Book Notices

Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and Its Members. By Charles A. Elsberg, M. D., F. A. C. S., Professor of Clinical Surgery at the New York University and Bellevue Hospital Medical College. Octavo of 330 pages, with 158 illustrations. Philadelphia and London: W. B. Saunders Company. 1916. Cloth, $5.00 net.

This volume takes up in a special way work that has heretofore been briefly given in the general works upon surgery, or which has not been given at all. The author has limited himself strictly to his subject, and general surgery of the spinal column has been left untouched, as he deals strictly with the spinal cord and its membranes. The one hundred and fifty-eight illustrations are of especial merit and add greatly to the value of the book, showing much of the technique which would be difficult of description. The book will be of interest only to those who are doing spinal surgery.

The Medical Clinics of Chicago. Volume II, Number I. (July, 1916). Octavo of 220 pages, with 41 illustrations. Philadelphia and London: W. B. Saunders Company. 1916. Price per year: Paper, $8.00; cloth, $12.00.

This number of the Medical Clinics of Chicago is rather more interesting than usual. Some very interesting cases of diabetes are discussed by Dr. Tice. The clinic of Dr. Abt and the discussion on "Feeding the Normal Baby" are timely and especially valuable, as is the contribution by Dr. Brophy on "Oral Infections."

The topics and clinicians in this number are as follows: The Use of Digitalis, by Arthur R. Edwards, M. D.; Diabetes with Complications, by Frederick Tice, M. D.; Diabetes and Surgery, by Solomon Strouse, M. D.; Vomiting, by M. Milton Portis, M. D.; Several Nervous Diseases, by Ralph C. Hamill, M. D.; Osteomyelitis, by Charles L. Mix, M. D.; Feeding the Normal Baby, by Isaac A. Abt, M. D.; Oral Infections, by Truman W. Brophy, M. D., D. D. S.; A Mediastinal Tumor, Multiple Tubercular Serositis, A Case of Bronchiectasis, A Case of Cerebrospinal Meningitis, by Charles Spencer Williamson, M. D.; The Principles of Fluoroscopy of the Stomach by James T. Case, M. D.

Practical Massage and Corrective Exercises. By Hartvig Nissen, President of Posse Normal School of Gymnastics; Superintendent of Hospital Clinics in Massage and Medical Gymnastics; For Twenty-Four Years Lecturer and Instructor of Massage and Swedish Gymnastics at Harvard University Summer

School; Late Director of Physical Training at Boston and Brookline Public Schools; Former Instructor of Physical Training at Johns Hopkins University and Wellesley College; Former Director of the Swedish Health Institute, Washington, D. C., etc.; Author of "Swedish Movements and Massage Treatment," "Practical Massage in Twenty Lessons," "A. B. C. of Swedish Educational Gymnastics," "Rational Home Gymnastics," etc. Revised and Enlarged Edition of the Author's "Practical Massage in Twenty Lessons," with many additions. With 68 Original Illustrations, Including Several Full-page Half-tone Plates. Price, $1.50 net. F. A. Davis Company, Publishers. Philadelphia.

In this little book the author describes and illustrates his methods of practical massage and corrective exercises as he applies them to various diseases or pathologies. The volume is of more benefit to the masseur than to the physician, although the physician may have an interest in the detail of the work.

A Text-Book of Practical Gynecology for Practitioners and Students by D. Tod Gilliam, M. D., Emeritus Professor of Gynecology in Ohio State University College of Medicine, and Sometime Professor of Gynecology, Starling Medical College, Gynecologist to St. Anthony and St. Francis Hospitals; Consulting Gynecologist to Park View Sanitarium, Columbus, Ohio; Fellow of the American Association of Obstetricians and Gynecologists; Member of the American Medical Association, of the Ninth International Medical Congress, etc., and by Earl M. Gilliam, M. D., Professor of Diseases of Women in the Ohio State University, College of Medicine, Columbus, Ohio, etc. Fifth revised edition. Illustrated with 352 engravings, a colored frontispiece, and 13 full-page half-tone plates. Price $5.00 net. F. A. Davis Company, publishers, Philadelphia. English depot, Stanley Phillips, London. 1916.

The fifth edition of this work is intended for students' use and for a working text for the general practitioner. The author has taken pains with his descriptions and text matter, so that the book might be easily read and understood. Three hundred and fifty-two illustrations make the text more valuable. The work covers a large field, but does it in a brief and concise manner.

The book will be of value to the busy practitioner rather than to the specialist, and is as its title implies, a practical gynecology. We recommend it to the student and to the general practitioner.

Venesection. A brief summary of the practical value of Venesection in disease. For students practicians of medicine. By Walton Forest Dutton, M. D., Fellow American Medical Association; Member Medical Society of the State of Pennsylvania, Allegheny County Medical Society; Ex-President Carnegie Academy of Medicine; Pennsylvania Society for Prevention of Social Disease; American Association for the advancement of Science; American Academy of Political and Social Science; International Congress on Tuberculosis, etc. Illustrated with several text engravings and three full-page plates, one in colors. F. A. Davis Company, publishers, Philadelphia. English depot, Stanley Phillips, London. 1916. Price $2.50 net.

A few years ago it seemed that venesection was a lost art, and that it had been discarded, but of late it is being more employed, and while it will undoubtedly never have the popularity it once enjoyed, it is again assuming its normal place in our armamentarium. It was the great therapeutic agent of the early practitioner of medicine. In this book the author discusses its use in certain disease where it may be used therapeutically and with success.

A correct understanding of the value of blood letting, together with a knowledge of its therapeutics, will undoubtedly renew many of its former applications and prove of value to many patients. The author has tried to teach its value in many diseases and conditions, and the book should prove valuable.

Bacteriology, General, Pathological and Intestinal. By Arthur I. Kendall, B. S., Ph. D., Dr. P. H., Professor of Bacteriology in the Northwestern University Medical School, Chicago, Ill. Octavo, 651 pages, with 98 engravings and 9 colored plates. Cloth, $4.50 net. Lea & Febiger, publishers, Philadelphia and New York. 1916.

This text by Dr. Kendall is primarily a work for students, but is also admirably fitted to the uses of the laboratory worker. The chapter on intestinal bacteriology is of especial merit. Throughout the work emphasis is laid on what the bacteria do, rather than on what they are, since interest naturally is centered in the host rather than in the parasite. Concise statement, clear expression and the elimination of theoretical considerations in favor of essentials are characteristics of this work, and its usefulness will impress itself more and more on the practitioner or student as he avails himself of its guidance.

The author's emphasis on the applications of bacteriology in etiology and preventive medicine is a point of value. The sections dealing with the physiological functions of bacteria are most enlightening, and the latest knowledge of complement fixation, hemolysis and the reactions of immunity is adequately presented.

The Treatment of Diabetes Mellitus, with Observations Upon the Disease Based Upon One Thousand Cases. By Elliott P. Joslin, M. D., Assistant Professor of Medicine, Harvard Medical School; Consulting Physician, Boston City Hospital; Collaborator to the Nutrition Laboratory of the Carnegie Institution of Washington, in Boston. Octavo, 440 pages, illustrated. Cloth, $4.50 net. Lea & Febiger, publishers, Philadelphia and New York. 1916.

In a time not long gone by a diagnosis of diabetes was equivalent to a prognosis of an early fatality. While the disease is still frightful as regards its fatalities, it is not now considered entirely hopeless. The work of Dr. Joslin will go far toward helping the practitioner prolong the lives of his diabetic patients.

The work is based on the treatment of one thousand cases by the author, and the experience of many other coworkers. The Allen treatment of diabetes is given fully and discussed. Complications of diabetes are described, together with their treatment. There is a chapter on surgery in diabetes which will prove of value to the surgeon. Every practitioner of medicine will feel repaid in obtaining a copy of this book.